

## The Business Case for Nearsourcing

This article will discuss the nearsourcing trend, beginning with an attempt at defining the term. We will then detail the two biggest drivers of nearsourcing: high fixed costs of internal manufacturing and high total costs of overseas outsourcing. Supporting the trend are technological advancements and engineering best practices. Finally, we will provide an example of machining companies that have had success with nearsourcing.

First, let's define nearsourcing. Traditional overseas outsourcing sends manufacturing operations to low-cost regions to save costs. At the other end of the spectrum, many OEM's (original equipment manufacturers) own their own manufacturing facilities, including full-scale machine shops, assembly lines, and quality departments. Nearsourcing is the place in the middle (see Figure 1), in which manufacturing occurs out of the four walls of the OEM, but not on the other side of the globe.

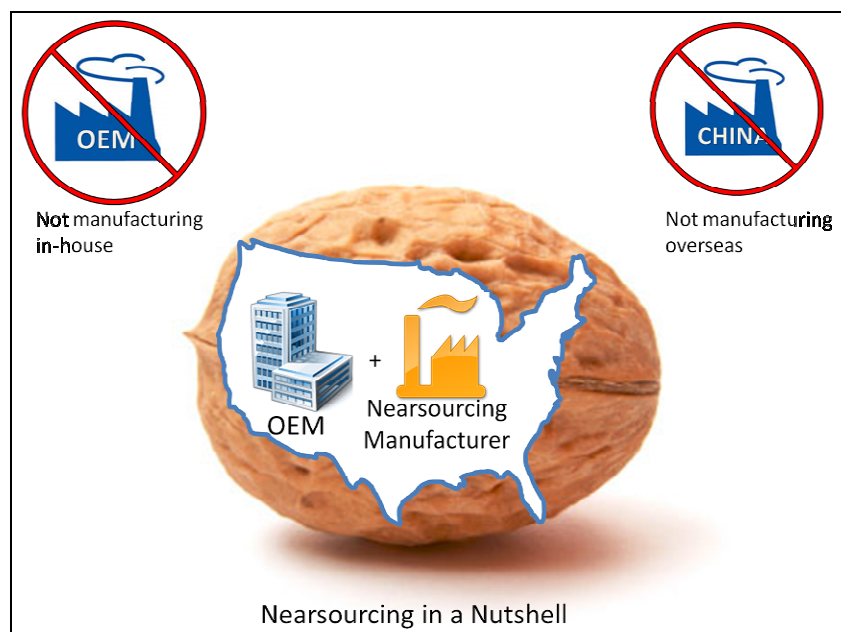


Figure 1. Nearsourcing is about focusing on core competencies.

The premise of nearsourcing partnership is the concept of core competency. A nearsourcing manufacturer's customers, "OEMs", are sharpening focus on their core competencies. We see a trend among their OEM customers to focus on:

- **Research & Development and creating Intellectual Property**
- **Sales and "Customer Intimacy"**
- **Marketing and Building Brands**

Just as companies outsource non-core competencies such as logistics, accounting, IT, and warehousing, companies outsource machining and assembly operations. As a Clint Eastwood character once said, “a man’s got to know his limitations.”<sup>1</sup> Outsourcing machining makes sense for OEMs because it is typically not a core competency. Further, machining is a capital intensive, high fixed-cost activity that faces significant demand variability. When demand is low, internal machine shops at OEMs put a large cost drag on the core business (see Figure 2). In the face of high demand, internal machining departments at OEMs struggle to keep up, limiting growth. Outsourcing machining to a precision machine shop makes sense for OEMs because it better aligns demand with capacity and cost.

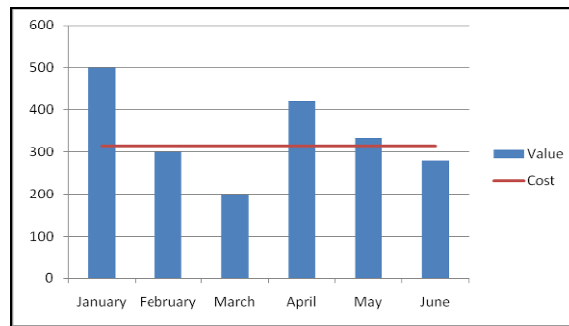


Figure 2. Internal OEM machine shops must carry costs over slow months

The way a precision machining company survives the variability is through a diversity of customers and using techniques such as Factory Physics<sup>®</sup> to manage variability<sup>2</sup>. To make money, machine shops have to fill the shop with enough work to pay for all of the assets (machines), labor, and overhead. When one customer takes a dip, the job shop can find others (Figure 3). An OEM that owns and operates its own machine shop must bear all of the variability associated with its business. If demand slows, the assets, labor, and overhead still must be paid for, month-in and month-out.

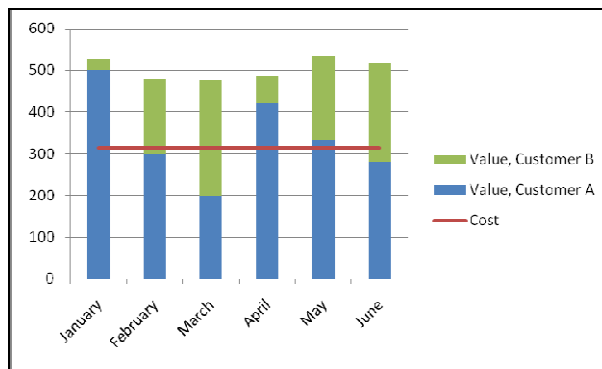


Figure 3. “Outsourcing” machining: multiple customers can cover costs.

<sup>1</sup> [http://www.youtube.com/watch?v=\\_VrFV5r8cs0](http://www.youtube.com/watch?v=_VrFV5r8cs0)

<sup>2</sup> <http://www.arctechinc.com/wp-content/uploads/2010/09/ARC-Factory-Physics-Whitepaper.pdf>



**Introduce Nearsourcing.** Outsourcing manufacturing often works best with domestic suppliers of precision machined services due to the complexity of the parts and needed responsiveness in the supply chain. In Plant Engineering magazine, Gust Gianos writes, “after years of rapid globalization, companies are beginning to see disadvantages associated with offshoring production, including high shipping costs, inferior product quality and particularly relevant with the continued ripple effect of the Japan tsunami, supply chain issues.”<sup>3</sup>

Companies have long attempted to own and operate manufacturing facilities overseas, and this can compound some of the issues mentioned above. There are significant cash flow and working capital considerations when sourcing from other countries.<sup>4</sup>

*“Six years ago, everyone was falling over themselves to get into China to save money and maximize what they called their ‘shareholder value’. But, when you begin to add up the cost of freight, the aggravation of delays, the lack of quality control, and the money you need to invest relative to cash flow, you’re starting to see people in the boardrooms of the big corporations reconsider that decision.”<sup>A</sup>*

As OEMs focus on reducing inventories, domestic suppliers are better positioned to provide the responsiveness needed to keep OEM supply chains running to fill demand. The Wall Street Journal article, “*For Lean Factories, No Buffer*”, makes the case for domestic suppliers<sup>5</sup>. In the article, Alex Niemeyer, head of the supply-chain practice for the Americas at consulting firm McKinsey & Co. states, “what we’re seeing is a general move toward building safety back into the system.”

**Other Factors Accelerate Nearsourcing.** The high mix, variability, and need for responsiveness inherent in precision machining provide the conditions driving OEMs to have a U.S. based supplier network for machined parts. Outsourcing machining has accelerated in the past 10 years as CAD technology and internet connectivity has matured. It has never been easier to document and transmit detailed product information. International standards for manufactured parts have also matured, making it easier than to communicate requirements. As basic as it sounds, the fact that computer and bandwidth speeds finally allow the rapid transmission of large files makes a substantial difference in our everyday ability to be nimble across a supply chain. It is not uncommon to receive an email with over 10 megabytes of 2-D drawing and 3-D solid model files that give machining providers all of the information required to make parts.

In addition, the manufacturing industry has evolved in such a way that manufacturing best practices have consolidated and engineers have agreed on common design decisions that speed execution and support outsourcing. For example, decades ago, engineers specified dozens of different grades of Aluminum, now most engineers select 6061. Industries and educational institutions were fragmented and there were many inefficient practices.

<sup>3</sup> [http://www.plantengineering.com/index.php?id=1792&cHash=081010&tx\\_ttnews\[tt\\_news\]=46417](http://www.plantengineering.com/index.php?id=1792&cHash=081010&tx_ttnews[tt_news]=46417)

<sup>4</sup> <http://boss.blogs.nytimes.com/2010/06/23/is-manufacturing-coming-back-to-the-u-s/>

<sup>5</sup> <http://online.wsj.com/article/SB10001424052748703916004576271631993174792.html>

**Strategic Nearsourcing.** There are many industries in which the concept of nearsourcing may not make sense right now. In today's US manufacturing environment, it may be difficult to build a business case to mass produce, say, flat-panel televisions in the US because of the robust infrastructure for that industry in low-cost countries. Likewise, it may also be difficult to build a business case for a manufacturer of life-saving medical devices to outsource quality control. In both of these examples, the OEMs currently have chosen to retain their core competencies in supply chain management and quality control, respectively. There are examples, however, of OEMs partnering and trusting their supply chain partners to take on what used to be a core competency, freeing the OEM to focus on R&D, sales, and marketing.

**Example of Nearsourcing Success.** Arc Technologies is an example of a company that partners with OEMs for nearsourcing. Arc has a mission to be the primary supplier for precision engineered and machined components for OEMs and their outsourced assemblers. Outsourced assembly operators can perform final assembly and test, sourcing all electronics, machined components, and other parts (see Figure 4).

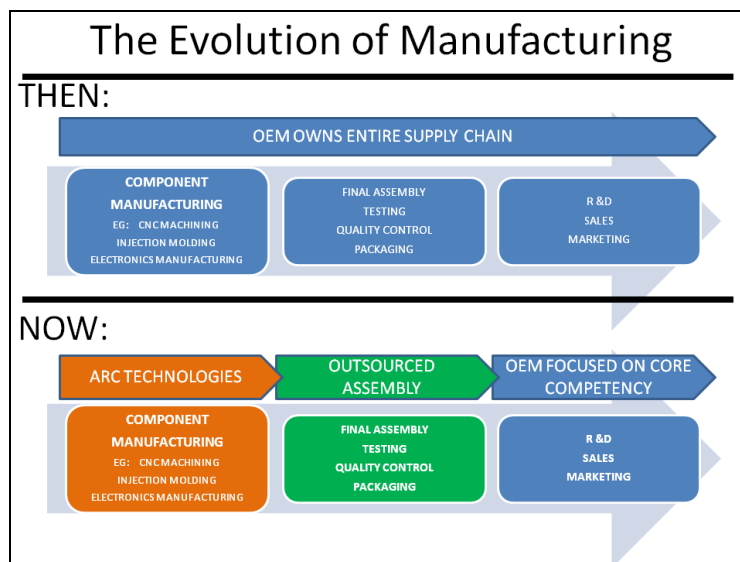


Figure 4. Strategic focus on core competency.

We hope you find this article helpful as you consider your manufacturing strategy. We welcome the opportunity to work with you on your nearsourcing questions. Please contact us for a specific discussion on your parts through our websites ([www.arctechinc.com](http://www.arctechinc.com) and [www.arc-precision.com](http://www.arc-precision.com)) or by calling us at 760-744-7400 (Arc Technologies) and 763-444-5019 (Arc Precision).