JENNIE S. HWANG

Outsourcing Manufacturing or Not, and to What Extent?

The underlying concept of outsourcing, in plain English, can be expressed as simply as by finding a better or more cost-effective way to do something, and concurrently freeing resources and time for essential or more critical tasks.

Under this concept, the electronics industry's circuit board manufacturing pioneered the process to implement a full-blown outsourcing strategy in the late 1980s or early 1990s (depending on how we define a starting point). Steadily, manufacturing outsourcing in the electronics industry has extended from the board level to its upstream (packaging, IC foundry) and downstream (system, box) food chain. Within the electronics industry, this sector originally was termed as contract manufacturing and later evolved to electronics manufacturing services (EMS), which is deemed to be a more appropriate representation for its expanded services.

Wall Street did not notice this fast-growing multi-billion dollar industry until the mid-1990s (passing the $100 billion mark in 1999). Today, the same concept of manufacturing outsourcing has spilled over to other industries such as pharmaceutical and chemical, as well as to other functions such as human resources and information technology management. In the meantime, the outsourcing offerings scope continues expanding and its capabilities are ever-proliferating, becoming an integral part of supply chain management.

"In essence, to outsource a non-value-added task is one thing, but to give up a knowledge base is another."

With respect to outsourcing driving forces, perhaps the word "competitiveness" speaks well for it. In the electronics industry, the fast-paced technological development, the relentless down-spiral pricing and the market globalization are the top three drivers behind manufacturing outsourcing with the competitiveness as the goal. Manufacturing outsourcing potentially can offer numerous advantages covering various business aspects, namely: economics, improved business focus, operation efficiency, technological prowess, capital funding, time-to-volume, time-to-market, geographic advantages, proximity to customer base, shared risk or transfer risk down the food chain, and reduced complexity of business.

As an aggregate, these potential advantages have a tremendous appeal to a business operation, particularly in meeting the immediate competition. The benefits can be truly evident only when a goal-oriented and well-thought-out strategy is executed.

With the solid establishment of EMS in our industry, does it mean that the technology-based companies can forgo the core engineering expertise, including manufacturing technology? It is always a strategic decision to take advantage of the benefit of outsourcing without losing the fundamental knowledge. The critical thought process goes to the assessment of the core competencies and the sorting out of functions or products for outsourcing from those that should be in-house. Even after a product or a function for outsourcing is determined, it takes engineering competencies to pose the "right" questions in selecting the best EMS provider. In essence, to outsource a non-value-added task is one thing, but to give up a knowledge base is another. Overall, outsourcing is to be dealt with as a well-planned strategy, not as a relieving tactic; and the outsourcing strategy should be discerned between the temporary lift and a long-term improvement.

Recently, I had the chance to dine with Dr. Kazuo Inamori, the founder and chairman emeritus of Kyocera Corp. I queried flatly his views on outsourcing manufacturing. He replied just as point blank, "How can an engineer not do manufacturing?" He made his point and I understood his sentiment. Considering a product development cycle from an innovative concept to developing a technology to manufacturing the product to introducing the product to the marketplace, each of the key milestones is pivotal to a product's success. The spirit and the principle of manufacturing are part of a product and should be thoroughly embraced and comprehended with or without using any outsourcing operation.

With today's fierce competitive climate and business justification, to outsource certain functions could be inevitable and actually can constitute a smart business move. I have witnessed and have been involved happily in the phenomenal development of EMS, from the fledgling operation to the solid establishment across three continents. EMS operations continue to have my genuine best wishes. However, it is prudent for OEMs or ODMs to maintain and obtain the engineering strength and know-how for future development. "Not hands-on" and "not pay attention" are the result of separate thought processes, and only a strategic thought process leads to ultimate success. SMT

Dr. Jennie S. Hwang is an *SMT* Editorial Advisory Board member, a member of National Academy of Engineering and an inductee of the WIT International Hall of Fame. She currently is president of H-Technologies Group Inc. Contact her at (216) 839-1000 or e-mail: JSLHWANG@aol.com.

Appearances

Dr. Hwang will speak at the System Integration in Micro Electronics Conference on "New and Emerging Technologies for Electronic Packaging and Assembly" and "Lead-free Component Coating" on May 6, 2003, in Nuremberg, Germany.