

## Special Report: Outsourcing

# Electronics Outsourcing: Making the Connection

Collaboration with electronics manufacturing service firms pays off for medical OEMs

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The impetus for medical device manufacturers to use contract manufacturing has grown in recent years. Old concerns about costs, skill levels, and intellectual property protection have disappeared. In their place is a renewed focus on core competencies by OEMs, allowing them to hand over the reins of production to experienced vendors with successful track records.

Electronics manufacturing service (EMS) firms are expanding to better serve device OEMs. As OEMs become more comfortable with the quality of the services provided, the suppliers' involvement in all stages of the development process will continue to increase.



A kidney dialysis device features electronic components designed and developed by TriVirix.

## Building True Partnerships

Read the  
Sidebar Article:

*"The Race for  
Compliance"*

Interactions between medical OEMs and EMS providers have dramatically shifted over the past few years. Once unable or unwilling to allow outside firms to work on product development, OEMs are opening up to the opportunities offered by collaborating with the EMS industry.

Pinpointing EMS companies with a medical focus makes it much easier for OEMs to hand over the reins, says Paddy Turnbull, business development director for Europe at TriVirix (Belfast, UK). Having worked on products ranging from fluid removal systems to cancer detection equipment, the company has a track record within the industry. "Manufacturers look for companies who understand the regulatory environment and have systems geared to handle a device history record," he adds.

In 2002, DTX, a manufacturer of embedded computers, made the decision to work exclusively with medical OEMs. "By focusing our work strictly on medical companies, we are better equipped to understand their issues," says Phillip Gerard, executive vice president for sales and marketing at DTX (Melbourne, FL, USA).

In days of yore, major medical manufacturers would use internal talent to build products, or hire personnel for specific projects. As costs grew more prohibitive and OEMs were forced to scale back resources, more possibilities for contract work opened up for electronics manufacturers. And, as the electronics manufacturers began to build their capabilities and establish themselves as experts, OEMs became much more comfortable using their services.

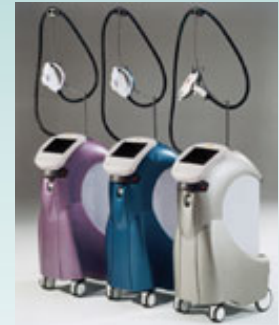
EMS companies with expertise in such ever-changing fields as wireless technology may find more OEMs knocking on the door. Such has been the case for EDS Ireland Ltd. (Newry, County Down, UK). The firm has faced the challenge of incorporating low-power, wireless broadband communications within license-free bands, according to the company's managing director, Kenneth O'Hagan. "As a result, we recently developed a proprietary wireless communications system for a real-time medical imaging application." The system can deliver 24-Mb/sec data rates, he adds.

EMS providers are well aware that partnership is a necessity when working with OEMs. "A close working relationship is an important element," says O'Hagan.

Indeed, the relationship-building process has evolved into OEMs asking for the supplier's involvement in all phases of the production cycle, from concept to final assembly—which is just fine with many EMS providers. "It has to be a true partnership from both sides, beginning as early as the design phase of the project," says Ulrike Winter, director of marketing communication at Sanmina-SCI (Stuttgart, Germany). Rob Weyer, director of business development at Three-Five Systems (TFS; Redmond, WA, USA), agrees, adding, "Our early objective is to participate with our customers when the product is being defined."

Effective communication and cooperation between OEMs and contract manufacturers is the key to establishing a true partnership. Turnbull says that providing services in an open, honest, and dynamic environment makes the difference. Adds Gerard, "It's important to openly share information with customers about designs, technology, and what the company is doing."

Additionally, device OEMs now view some EMS providers as consultants in specialized areas. "In order to maximize their engineering resources, OEMs are allowing us to work with them on design. They're using our expertise in designing and developing computer platforms to their advantage," says Gerard



Sanmina-SCI has partnered with medical OEMs to produce equipment such as the laser dermatology devices shown here

### **"All Offshore That's Going Offshore..."**

Contract manufacturing has been done in overseas markets for many years. Low labor costs have made it highly desirable for companies to take advantage of Asian outsourcing. Yet for the medical device manufacturing industry, debates have raged over such issues as intellectual property protection, quality of the finished product, and materials management.

One key factor that keeps many medical OEMs from using offshore outsourcing is that of volume. Many Asian companies only accept high-volume, low-yield orders, hence the quantity of consumer electronics that are produced in Hong Kong, Taiwan, and the like. Yet OEMs that are producing electronic medical devices typically need low-volume, high-yield goods.

Gerard believes that OEMs will continue to use U.S. and Europe-based companies for product design and engineering. However, DTX does take advantage of what's available from Asian resources. "We'll get flat-panel displays from Asian suppliers for the human interface component," says Gerard. "We see it as a sourcing opportunity."

Another issue is materials management. Costs of shipping components back and forth can get quite high. "Complex products tend not to lend themselves to the extended supply chain involved in offshore production," says Turnbull.

It is possible, however, for EMS firms to successfully outsource production and assembly to Asia. Sanmina-SCI has opened several manufacturing plants in China to service its customers. According to Winter, the benefits of Offshoring go beyond cost reduction. "The ability to produce complete products under a global company umbrella is what the OEMs are actually looking for," she suggests. "For Sanmina-SCI, China is one of the medical locations that plays an integral part in making a global strategy work for our customers."



Lean manufacturing techniques are applied at DTX Inc., a supplier of embedded computers

## The Wave(s) of the Future

Going forward, medical electronics outsourcing will most likely change in ways that will resolve current challenges. Issues with quality control may lead to more-internalized quality systems that comply with international standards. Even if medical electronics remain exempt from EU directives on the use of hazardous materials (see sidebar), more EMS firms may move toward compliance in order to support their customer base. "Obviously, some of these directives incur associated manufacturing costs," says Turnbull, "but we already strive to keep those costs contained so that they don't impact pricing."

EMS providers may move away from a modular approach to manufacturing and become more turnkey. Following the original design manufacturer (ODM) model that is common among consumer electronics firms may be the easiest way to achieve this goal. However, this paradigm shift would require contract manufacturers to add services, such as product testing and engineering, rather than relying on OEMs, or possibly subcontractors, to supply these services. This isn't a struggle for some companies, though. "EDS Ireland already partners with other EMS companies, which allows us to introduce value-added design services and offer ODM solutions to our customers," says O'Hagan. Becoming turnkey gives EMS firms the prospect of not only developing the products, but also sustaining them when changes are made.

An objective approach, on both the parts of the medical OEMs and the EMS companies that serve them, may hold the key to successful product development. Incorporating lean manufacturing techniques may also be beneficial for both suppliers and manufacturers. DTX has already seen the advantages in using this process. "When both manufacturers and suppliers are using lean manufacturing principles, it makes it much easier to work together, because both parties want to understand each other's process," says Gerard. "It's had a very positive impact on our business, and we've seen OEMs experience a significant impact as well."

Offshore outsourcing will continue to grow. "The Asian market is hungry for medical," says Three-Five's Weyer. "It may not be what most manufacturers consider high volume or high revenue, but it's steady and predictable work." He suggests that transferring products to offshore manufacturers can be done successfully once the product design is stable. As confidence levels in offshore outsourcing increase, more midlevel to large EMS providers may open facilities in Asia, while smaller EMS organizations may partner with firms that have offshore operations in order to cut costs.