

LOOK LOCAL FOR WORLD CLASS PRODUCTION



DESPITE OBVIOUS THREATS from Chinese and Eastern European competition, Newcastle-under-Lyme based contract electronics manufacturer AWS Electronics, is optimistic about the future and planning for growth. In this article the company provides electronics buyers with an overview of the UK's subcontract production sector, highlighting areas of change and opportunity.

Market Overview

In recent years, major industry changes have included:

- › Out-sourcing to the Far East and Eastern Europe
- › OEM's demand for JIT supply
- › Speed of component obsolescence
- › UK OEMs closing or moving production
- › Demand for integrated capabilities
- › Demand for company accreditation, skilled staff and sophisticated equipment

Out-sourcing to the Far East and Eastern Europe

Out-sourcing to the Far East and Eastern Europe takes (mostly) high volume business from the UK. Although such

Flexible surface mount production facilities lie at the heart of just-in-time delivery



CEMs are venturing into medium volume boards and assemblies, this business trend has played into the hands of companies like AWS because it is easier to liaise with a local supplier for development, start/end production and irregular quantities. This helps suppliers and their customers to handle manufacturing complexity, product variety and rapid design changes.

Compared with Far Eastern and Eastern European suppliers, UK based manufacturers can offer advantages during: new product introduction; end of life production; low and medium volume assembly; JIT delivery; value-added services; and customer liaison.

OEM's demand for JIT supply

The growth of Just-in-Time (JIT) supply to original equipment manufacturers (OEMs) also offers domestic manufacturers a tactical advantage over Far Eastern and Eastern European suppliers: being able to start or stop production at short notice. Although altering production at short notice incurs costs and inefficiencies, it can also add value and competitive advantage.

Speed of obsolescence

Increasing component obsolescence drives some business towards re-engineering existing products to re-produce the functionality of original equipment. Although this can be costly and labour intensive it is an essential service. Examples of products affected by obsolescent issues include trains, aircraft, ships and other long life, non-IT, capital equipment.

UK OEMs closing or moving production

The trend of UK-based OEMs closing or moving production overseas tends to

Left: High voltage power supply units require a broad mix of manufacturing skills and technologies

Right: Cable harness assembly and test is an example of electromechanical manufacturing capability

disadvantage companies like AWS, although not entirely so. As OEMs move products overseas UK-based manufacturers can see their potential market fall. However, this is balanced as new companies develop and launch products in the UK. This also links with the trend towards vertical integration which involves the provision of services beyond product manufacturing and delivery.

Demand for integrated capabilities

As customers reduce their in-house resources, they increasingly need suppliers to offer a broader range of services such as PCB layout, system design and accreditation. Another aspect of vertical integration is OEMs' desire to reduce their supplier base, by encouraging suppliers to provide a broader range of goods and services. By investing in in-house resources, or partnering with experts, UK-based CEMs can offer a wide range of services including: PCB design, layout and manufacture; assembly design; enclosure design and manufacture; product design; prototyping; component specification and provision; lead-free compliance; product qualification/accreditation; kitting; reverse engineering obsolete products; and managing the ends of life production.

Of greater importance is the integration of printed circuit board assembly (PCBA), sub-assembly manufacture and harness

production. An example of such value-added work is the DMIST ClearVue, a product designed to de-fog digital camera pictures, thus reducing or removing the adverse effects of fog, mist, rain and smoke on cameras used for CCTV, television and road traffic monitoring etc.

During this project, AWS was asked to re-design the equipment to: fit the electronics in a 1U enclosure; re-design the electronics to use standard commercial components; reduce the number of custom PCBs; implement new DMIST enhancements; design the unit for CE certification; and undertake the project management. The product is now being marketed successfully.

Other value-added development work has included: parallel engineering and prototyping of an RF generator; aero-defence cable harness design and layout; and component re-specification to reduce costs by over 60 per cent.

Demand for company accreditation, skilled staff and sophisticated equipment

AWS is accredited to ISO 9001:2000, which is a fundamental requirement that many OEMs place on their suppliers: without such accreditation AWS would not be invited to tender, still less win the tender.

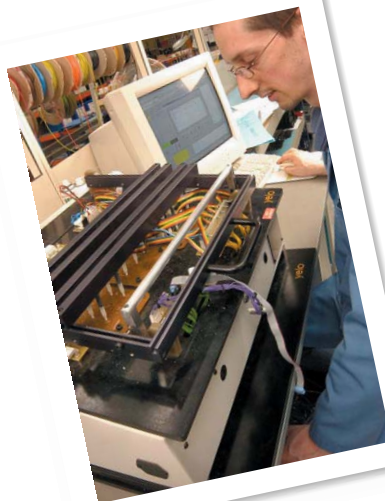
As OEMs focused on quality they need their out-sourcing partners to provide consistent quality and technical capabilities. To this end, AWS focuses its investments at training and equipment, both geared towards quality, flexibility and service variety.

For geographically local customers, UK-based subcontract manufacturers can offer significant advantages over their offshore competitors in the six following categories: new product introduction; end of life production; low/medium volume production; JIT supply; value-added services; and customer liaison.

These advantages illustrate why low price countries are not necessarily low cost countries. Problems ranging from increased administrative effort to travel time can more than outweigh perceived advantages of cheaper labour.

New product introduction

Regarding new product introduction, AWS' value-added services (in-house and via The AWS Network) include product development, design, accreditation, production engineering and account management. These activities require close and frequent liaison with customers' technical and commercial staff: difficult when dealing with an offshore subcontractor that could



be a 13-hour flight away.

The start of a production run is usually a time of low and uncertain product demand, leading to variable supply requirements and urgent orders on short lead times. Likewise, rapid delivery does not lend itself to five-week shipments from the Far East.

End of life production

Toward the end of a project, demand again becomes low and uncertain. Other end-of-life issues include component obsolescence (requiring skilled sourcing or product substitution) and increasing demand for spare boards and assemblies rather than complete products. Again, flexibility delivers significant commercial advantage.

Low/medium volume production

With flexible machines and a flexible workforce, AWS specialises in low and medium volume (from single units to tens of thousands) production. In addition to low/medium volume OEMs, high-volume OEMs also usually have products within their range that fall into this category. They may also offer low/medium volume options on high volume ranges.

Supply to JIT customers

OEMs operating just-in-time materials delivery frequently require short lead time orders to keep their production lines or warehouses stocked and operating without shortages. Provided the contract is priced appropriately (changing production at short notice causes inefficiencies) this level of service can provide significant competitive advantage.

Value-added services

Value-added services, such as product development, design, approval,

Inspection and test technologies include ATE and x-ray

production engineering, re-sourcing, reliability engineering, kitting and after-sales support are best delivered to customers locally (same language, culture and time zone).

Customer liaison

To respond rapidly to customers' needs, AWS' account managers are fully aware of production requirements and loadings. The company's flat management structure and private ownership speed the decision making process.

When sourcing a subcontract manufacturing partner business stability is vital. In 1997 AWS sold predominantly to the vending market, with two thirds of its business in that sector. In six years the company diversified so that no sector now accounts for more than 26 per cent of business. This provides stability, with the company no longer vulnerable to the vagaries of any single customer or sector.

Finally, the company is keen to highlight the importance of investing in ongoing training. In addition to training its staff to IPC 610/620, the company has in-house accredited trainers to maintain a permanent, ongoing training process. Other training activities include Six Sigma, 5S and SPC. The next significant training initiative is J-standards in the surface mount area.

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