

## **ODM OR EMS: WHICH CHOICE IS BEST FOR YOUR PROJECT?**

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### **ABSTRACT**

In a world of shrinking product development cycles and continual cost pressures, it is important to consider all costs in the outsourcing equation. Developing product around existing original design manufacturer (ODM) technology may save time and cost in product development. In other cases, tapping an electronics manufacturing services (EMS) provider with robust engineering skills may represent the best option. Tailyn Communication Company, Ltd. is an original equipment manufacturer (OEM), ODM and EMS company which serves the industrial PC, wireless communications, point of sale and networking markets. This presentation will look at ODM and EMS business models and discuss the differences between the service focus of each model and the synergies that they can bring to each other.

Key words: ODM, EMS, electronics manufacturing services, contract manufacturing, Tailyn.

### **INTRODUCTION**

OEMs face both time and cost pressures in the race to stay competitive. Outsourcing can provide a collaborative approach that leverages supplier expertise, purchasing power, manufacturing capability and logistics channels. However, achieving lowest total cost requires careful evaluation of project goals, outsourcing business models and supply base options.

The EMS business model taps shared engineering expertise, purchasing capability and manufacturing capacity. Its benefits can include:

- Access to a wider range of product development and engineering expertise than may be found internally at the OEM
- Minimization of fixed costs associated with product manufacturing and reduction in working capital
- Access to greater purchasing power
- Access to robust project launch and design for manufacturability/testability (DFM/DFT) processes
- Improvements in logistics efficiency
- The ability to offload operations not in line with core competencies such as repair depot.

The ODM model taps a supplier's product development expertise. Advantages include:

- Ability to speed product development by incorporating ODM proprietary products and technology in new product development
- The ability to reduce tooling costs by using proprietary packaging or custom components
- Access to application specific expertise
- Access to shared manufacturing capacity
- Minimization of fixed costs and reduction in working capital.

### **PROS AND CONS OF THE EMS OPTION**

The traditional EMS model assumes that the OEM owns the design and that the contractor is primarily a manufacturing and logistics expert. The contractor may provide some support during the design phase, but traditionally this is more DFM/DFT or design for procurement recommendations, rather than true conceptual design. That said, EMS providers typically have engineering expertise over a broad range of products and can act as extensions of their customers' product development teams. This can be particularly attractive to companies with products requiring enhanced functionality, such as a medical product that needs to add communications capability.

The model leverages economies of scale in production resources. Customers have some flexibility in scheduling and specifying quality requirements and/or other preferences. From an inventory standpoint, the customer defines the approved vendor list (AVL) and may also set requirements for finished goods kanban quantity.

Non-recurring engineering (NRE) and tooling costs are typically charged at the beginning of the project, but the customer then owns tooling and documentation.

One of the biggest advantages of the EMS model is that its focus is service. Most EMS providers have the capability to support all phases of the product lifecycle, and in smaller and mid-size EMS providers, service and flexibility are often points of differentiation and value.

Finally, while changing EMS providers is not without cost, since the OEM owns its design and tooling, switching suppliers is always an option.

### **PROS AND CONS OF THE ODM OPTION**

While OEMs do leverage an ODM's manufacturing resources, the largest part of the economy of scale savings is in product design and tooling. Typically, in this model OEMs are tapping the ODM's proprietary technology, core parts of product design or packaging, and application-specific engineering expertise.

Understanding project goals and long-term strategy is critical in this type of relationship because the OEM and ODM can become permanent partners in shared product designs. This is due to the fact that often the customer is simply licensing technology or product elements and using tooling owned by the ODM.

For example, with an EMS provider geographic build locations are very flexible. If the current EMS provider doesn't have facilities in the desired build site region, it isn't difficult to find an EMS provider with similar processes and equipment who does. Comparatively, changing ODMs may involve redesign and retooling.

Service and flexibility may also suffer. ODMs differentiate themselves by their technology, engineering expertise and application-specific product lines. As a result, they aren't typically interested in interrupting production with high mix products. Nor are they as open to customer-defined AVLs or finished goods kanbans.

If high mix or variable demand is likely to be an issue, it is important to understand the ODM's track record in supporting high mix or variable demand projects. Talking to references with projects of similar size and complexity is one way to sanity-check this area of the business model.

Material leverage may be a strength for an ODM, since it may be a high user of application-specific components that other companies purchase in lower quantities. In those cases, restocking privileges may be more liberal and material liability may be reduced, since application-specific focus translates to higher levels of material commonality.

Software development is an area that should be watched closely. In some cases the software platform is owned by the ODM. It is important to understand whether software is just licensed or owned by the customer. One option that can provide enhanced flexibility in this area is hiring a third-party software developer. The positive is that the work is still outsourced. The negative is that it adds complexity and could create a longer learning curve. It can also make problem identification a little more difficult, since if there are issues with the design, the two vendors may be blaming each other.

Availability of application-specific functional test equipment may be another advantage. Typically, an EMS provider would expect this equipment to be consigned. However, an ODM may keep a much broader complement of equipment in-house to support its core technologies.

The biggest advantage is reduction in time-to-market. Being able to design a product around an established ODM platform can take months off the design cycle. Learning curve is minimized, components may already be in the pipeline and packaging may already be tooled.

## **CASE STUDY EXAMPLES**

The following represent examples of projects best suited for each business type.

### **EMS Example**

An industrial equipment firm with strong internal product development expertise wanted to improve their overall manufacturing efficiency by tapping the resources of an EMS provider.

The company had strong internal conceptual engineering resources, but wanted their EMS provider to handle DFM/DFT analysis and bill of materials (BOM) development. They wanted a unique product rather than one using another company's proprietary technology.

Tailyn worked as an extension of their engineering team during the product development process. DFM/DFT recommendations included adjustments to PCB layout to maximize return on PCB size and address potential manufacturing quality issues in the SMT process. The original BOM was analyzed in terms of best supplier choices for price, quality and delivery performance, and second sources were added wherever possible.

The end result of early contractor involvement was that 1-2 PCB design spins were eliminated, and both quality and supply chain flexibility were enhanced. Leveraging the EMS business model enabled the customer to do what they did best: design innovative new products.

### **ODM Example**

A company with some internal design capability had an aging product platform. When sales started to drop off they were left with the choice of maintaining the existing platform and losing market share, or teaming with an ODM to rapidly develop a new platform.

They opted to team with Tailyn in a joint design effort because they would be able to incorporate the ODM's technology in their new platform and launch new products faster than would have been possible with an internal new product development effort. It also freed up their engineering team to work on other projects. In this case, the customer blended their expertise in product field performance knowledge and market intelligence with the ODM's expertise in basic hardware architecture and software design.

The combined result was a new generation of product one year ahead of its competitors and the ability to stay price competitive on existing products.

## **THE HYBRID MODEL**

As indicated above, it is possible to utilize a company that is both an ODM and an EMS provider. That is a situation where customers have more flexibility, since the benefits of both models are available.

However, even in a hybrid situation it is important to understand that there are tradeoffs in each model. The highest level of product development expertise is found in the ODM model. The greatest degree of flexibility and service is likely to be found in the EMS model.

## **KEY QUESTIONS TO ASK WHEN CONSIDERING OPTIONS**

There are a number of critical questions when evaluating an ODM vs. EMS option:

- What is the desired product lifecycle length?
- What are internal core technology competencies and what technology expertise needs to be acquired in the outsourcing effort?
- What are the likely demand patterns?
- Are their synergies on materials available from an ODM that would not be present in an EMS relationship?
- Who owns the tooling?
- Is the software licensed from the ODM or owned by the customer?
- Is there a local content requirement that would make one choice or the other more attractive?
- Does the supplier have a track record of doing projects of similar size and complexity?
- Is there a contract that clearly defines the disengagement process and product ownership rights?

## **CONCLUSION**

In making a final choice, alignment of expertise with project requirements, track record on similar projects and overall trustworthiness need to be carefully evaluated. A strong relationship is particularly important in a joint development or product incorporating shared design.