



The Importance Of

EARLY SUPPLIER INVOLVEMENT



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Introduction

There is a definitive sequence that most engineers and designers follow when conceptualizing a new product. First is the need for a new design, either from customer inquiries or management's desire to expand their product line. Next comes the concept phase, in which engineers research and brainstorm to come up with a design and a plan of attack. After that, prototypes are made and manufacturing processes analyzed until final standards are signed off upon.

At any given time in the design process, an engineer will need to outsource a supplier for anything from fittings and threads to the actual machining and fabrication—depending on the application capabilities. A critical error that many engineers make is waiting too long to seek out a supplier. This results in the outsourcing company often devising less expensive production methods. Although this practice reduces costs, it sends the prints back through the gamut of design, quality checking, and managerial approval. Sometimes the desired manufacturing methods cannot be completed by any suppliers in the adjacent region, and then it's back to the design phase.

Therefore the process of early supplier involvement (ESI) is one that's recommended in the initial planning stages for a product— in fact most designers say the earlier the better. ESI presents an engineer with a direct outline of a supplier's capabilities – kind of like being supplied the music and just having to put the lyrics together.

When suppliers are involved early in a project's design phase, it provides cost cutting benefits, makes the project more feasible to manufacture, and ultimately cuts down the lead time between concept and production.

Some individual areas where ESI contributes to successful product development include the following:

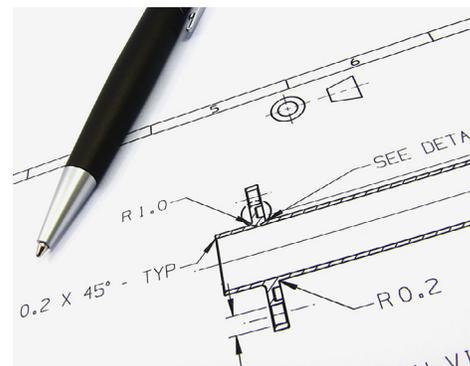
Material Specs

Depending on the project, an engineer could be faced with any number of tasks when it comes to defining material specifications. Any given project may need to be lightweight yet durable, or heavy and weighted, or weather-resistant, scratch-resistant, etc. There are a number of different routes to ultimately conclude at this solution, but the simplest way is to involve a supplier. Since a supplier has knowledge and expertise in their materials, a designer simply presents them with details of what's needed and in turn receives the best possible alternatives.



Tolerances

Engineers can often be guilty of setting unrealistic expectations when it comes to tolerances on their prints. This is by no means a fault, just a combination of wanting complete control of their design and misinformation on the manufacturing processes. By utilizing ESI, the supplier production manager can go through each manufacturing process and explain how feasible the suggested tolerances are. If a forming method is non-crucial then opening up the tolerances speeds up manufacturing time and lowers cost in the process.



Process Changes

Arguably the biggest reason to have ESI is for any process changes that may need to be completed on a design. The old guard of design involved three steps: 1) engineering, 2) procurement, and 3) production. The supplier wasn't involved until after a design had been modeled and numerous prototypes had been commissioned. Once a design had been finalized the responsibility of finding the most cost effective ways of production fell to the procurement agents within a company, in effect handcuffing them.

It's easy to see the benefits of early supplier involvement compared to the traditional method of engineering, procurement, and construction (EPC). Instead of being presented with a list of predetermined elements, ESI helps to create that list as the design evolves. Suppliers can suggest process changes that would lower the production lead time or remove steps altogether for substantial cost savings. The risk, however, is that these recommendations can compromise the integrity of the design.

Product Standardization

The ultimate success of designing a new product is the ability to sell the product in multiple markets without making significant modifications. This product standardization increases the potential customer base and the uniformity of a design, making it less expensive to manufacture. It's important to understand that standardization does not deter creativity or progressive concept; it simply means that the supplier is going to help ensure that the product will be compatible with its competitors and in global markets (couplings, wiring, attachments, etc.)



Order Sizes / Inventory

Another reason to bring in the procurement specialists is to fine-tune the order sizes once the product gets ready for distribution. Order sizes are actually very important for cost savings as a whole and not specifically just because buying in bulk will net a lower price. In fact, some suppliers may prefer small, consistent orders instead of one large volume order; these suppliers will often supply a contract price for such runs. Still, others prefer longer runs, as it limits setup and tear down times, for which they may have dedicated machinery set aside.

Early supplier involvement is also crucial if a company is going to keep a lot of product on inventory. It's advantageous to have a substantial inventory so orders can be filled immediately, but at the same time space becomes a concern as well. It may prove feasible to change the design so that assembly is required, thus taking up less space in your facility.



Transportation

The last major point of ESI is pre-determining how the product is going to be transported. Cost-analysis from outsourcing parts involves not only the manufacturing of the component, but the transportation after completion as well. It's important to know if different suppliers have their own fleet or rely on the engineer / designer / procurement team to arrange shipping.





ESI Is an Accepted Practice

There's definitely some pride involved in being an engineer and most look at a design as their brainchild. Although it can be difficult for some to bring in a supplier to "co-design" with them, it is an accepted industry-wide practice. Progressive thinking companies understand that the benefits of ESI are simply too much to overlook—both in terms of cost savings and product efficiency.

Simply put, there's almost no way for designers to have their pulse on the ever-changing world of procurement and supply. Capitalizing on the latest technologies and always being up-to-date on changing material costs, shortages, and trends makes an engineer's job more efficient. At the same time, having an ally in the field keeps them knowledgeable and informed.

Benefits of a Sole Supplier

When exploring cost-cutting measures, it is generally encouraged to get multiple bids and quotes. That strategy can be somewhat misleading though when it comes to working with a supplier. The benefits of ESI are almost negated when multiple suppliers and their input are brought in for design recommendations. In fact, finding one trusted supplier may actually be the most effective route for both cost and product quality.

Developing a relationship with a sole supplier is beneficial for both parties. With a single source, an engineer can be sure quality concerns are addressed in multiple phases. A single supplier can sometimes work as a sub-company, establishing and maintaining inventory specifically for that buyer. The buyer also avoids costly tooling prices from multiple sources—the buyer has only one contact point they need to go through for product progress. With ESI, the supplier helps create a design they're comfortable working on and enjoy the windfall of steady work that comes from their input.

Summary

In the end, there's really no reason not to have early supplier involvement. A second set of eyes on the project from those who have familiarity and experience in materials and manufacturing can only improve a design. Input never hurts, but a lack of input can be debilitating.