Challenges

A part can be manufactured in a prototype facility, but it fails to scale when required to be produced in higher volumes.

Typical challenges include:

- **Understanding the key manufacturing processes needed for scaling up production.** The key is to understand both the technology and the associated manufacturing issues for scale up considerations during the design process.

- **Locating capable suppliers to manufacture the part at higher volumes is a challenge.** Involving suppliers during the design process is critical when decisions are being made about how to scale production.

The Solution

The first step to creating a new supply chain to support higher volumes is a comprehensive review of the part and the demand requirements. This includes an analysis of the current “as is” low volume manufacturing process and recommendations to scale that process. Once the supply chain requirements are well understood and documented, a supplier discovery process is enabled to find suppliers with the needed capabilities. Typically a request for quote (RFQ) or a request for information (RFI) sourcing event is created with the associated technical data and supply chain requirements. The results from the sourcing event are evaluated and recommendations made to the customer.

Other tools available to support this activity include:

- **Direct material sourcing software**, for electronically capturing and submitting the needed supplier responses.

- **Supply Chain Modeling and Simulation software**, using the results from the suppliers to create a model that better understands the “to-be” supply chain demand.

- **MRL assessments**, to evaluate the readiness to manufacture the part with an emphasis on the technical data.
Solution Benefits

The benefits to this solution include:

Implements quality

Incorporating process requirements for the future production rate demand earlier in the design provides higher quality solutions for the final product. In addition, finding suppliers with the needed capabilities is critical to meeting delivery needs, quality requirements and specifications.

Reduces cost

Reducing re-work in the production environment relates directly to reducing costs.

Shortens product development lifecycle

Improving quality and reducing rework shortens the product development lifecycle.

Implementation

The Professional Services required for the new supply chain creation solution are as follows:

- **Phase 1 – Discovery**
  Determine the “as-is” state of the manufacturing prototype and current scale up issues to establish a proposed plan.

- **Phase 2 – Assessment**
  Perform a detailed assessment of the existing supply chain and manufacturing challenges.

- **Phase 3 – Analysis and Recommendations**
  Present the findings of the assessment to management with the steps needed to implement a new supply chain.

- **Phase 4 – Implementation**
  Implementation of the new supply chain, using technology as appropriate.
  The use of other software applications will be quoted on a project basis.

About the Electro-Optics Center

The Electro-Optics Center (EOC), a proud part of The Pennsylvania State University, is a hybrid between the best components of a university and those of private industry. This relationship allows us access to the university’s researchers and scientists, its state-of-the-art facilities and leading edge research.

Our staff, comprised primarily of former industry and DoD personnel, brings experience in exceeding sponsor and corporate expectations. Through the application of this hybrid model, the EOC is able to provide its sponsors with solutions that combine leading edge research with on-time and on-budget deliveries. Learn more at www.eoc.psu.edu.