PROTOTYPING AND PILOT PRODUCTION STRATEGIES TO ACCELERATE NEW PRODUCT LAUNCHES

End to end contract manufacturing solutions to maximize your product’s business potential
When racing to beat competition on a new product launch, every day counts. Speed is equally important for The U.S. Department of Defense (DOD) in developing new equipment and critical components. To streamline and accelerate the process, they created a tool to assess a product’s Manufacturing Readiness Levels (MRL). Many of the same strategies used by the DOD can be used by industry to significantly cut time to market for new products, thereby boosting revenues and market share. Inspired by the DOD’s research, this paper discusses three ways to optimize a new product’s MRL by focusing on the prototyping and pilot production phases of development.

1. **Avoid Scheduling Conflicts and Queues** Being unable to access equipment when it’s needed, or getting bumped at the last minute for a more important project, will interfere with your ability to meet milestones and keep to your timetable. And waiting for a production run to end before your project (and all the others in the shop) can be scheduled creates unnecessary opportunity costs in terms of revenue potential and market share. Additionally, limited availability of production assets restricts your team’s ability to explore a full range of concept scenarios to identify performance improvements or cost reductions.

   *If your organization doesn’t have dedicated manufacturing lines set aside for prototyping and pilot production work, you should seriously consider moving the work to an outside source. Even then, make sure that the contractor has a separate, dedicated area devoted to rapid prototyping and limited production runs or you may encounter the same issues as with internal resources that you were seeking to avoid.*

2. **Focus on Core Competence** Much of the value derived from prototyping and piloting new products comes from the interaction between the operations and development teams. It is not good project management to isolate these functions. Pairing the product development team with manufacturing and operations talent not only can cut weeks from your schedule, but it also enables the use of concurrent engineering principles to perfect designs and allows you to take potential manufacturing partners for a test drive. Check whether your potential partner has relevant materials expertise that your team may lack. If your design has multiple components, look for some degree of vertical integration to prevent inter-vendor finger pointing. Recently, we had a customer that tried to prototype a process for perforating a material with which they had limited experience. They lost two months before giving up and involving our engineers who, because of an intimate knowledge of the material’s characteristics, were able to build the prototype in a week. Another customer spent precious weeks trying to mediate which prototyping vendor was responsible when the two separate components they were working on didn’t fit together as designed. A single-source vendor would have figured it out themselves without needing to raise the issue with the client.

   *Identify where in-house resources don’t add much value and look outside the company for those non-core capabilities.*

3. **Outsource Process Validation** A commonly overlooked source of significant time savings is the phase of inspecting new manufacturing processes. Internal inspection teams can take up to six months to schedule and complete the process. By providing your contract manufacturing partner with the appropriate quality standards, you need only approve their validation protocol and the final output. We have seen this approach cut the time required for this final pre-production step by 60-70% versus using internal resources.

   *Check that the vendor handling your pilot production has the internal quality expertise to design, manage and report validation at a level commensurate with in-house capabilities. Ask to see case studies and the credentials of the quality director. If the capability is there, it can make a huge difference in your launch date.*

**Conclusion**

The DOD’s approach to assessing the MRLs of new technologies and designs provides useful lessons into how to accelerate new product launch schedules. Relying on dedicated prototyping and pilot production, and having a willingness to reach outside the organization for non-core expertise, can get you to market months ahead of competitors, and that means incremental revenue and market share.