LEAN PROJECT DELIVERY AT IPS

Following the success of Toyota Motor Corp., most industries are trying to apply "Lean" principles to their operations. The Pharmaceutical and Biotechnology Industries have also joined in the quest to become "Lean". Most of the strategies and discussions in the Pharmaceutical Industry have revolved around reducing wastes and removing redundant tasks in manufacturing areas. The same principles apply to projects and the "Total Project Delivery" method as well. IPS has taken a lead role in developing the *Lean Project Delivery* process in the Pharmaceutical Industry. Our Lean Project Delivery Process is aimed at four distinctive areas: cost, waste, redundancy and continuity. By focusing on these four areas, we have been able to reduce project construction costs as well as project soft costs. Our Lean Process is also designed to shorten project timelines which generally translates to lower costs.

A common obstacle in the implementation of Lean Processes in Project Delivery is overcoming deeply rooted industry preconceptions. There is a fundamental issue with the distribution of risks. Generally, most industries are faced with mitigating different interests between the Design community and the Construction community. In the Pharmaceutical Industry, there is a third element, Compliance (Commissioning & Qualification) community, which has to be considered also.

IPS has provided complete *Project Life Cycle* services in Engineering and Construction Management as well as Compliance to the Pharmaceutical and Biotechnology Industries for over 20 years. With these services available in-house, IPS is involved from project inception to project completion through commissioning & validation. This experience with the complete Project Life Cycle has given us the perspective and opportunity to analyze and challenge every traditional step of the project delivery process and develop unique ideas and solutions to eliminate waste and redundancy. In addition, our in-house experts are focused on providing services to the industry in terms of Operational Excellence, Six Sigma, Lean Manufacturing, and Lean Techniques. IPS has developed certain unique processes and reshuffled the traditional project delivery sequence that are generally designed for "risk allocation" and "pass the responsibility" sequence. IPS has practiced these alternative ideas and executed numerous successful "Lean" projects.

"IPS Lean" supplements well known Lean Practices with a set of unique steps and processes. Typical Lean Practices include common processes such as critical path scheduling, early definition of critical decisions, and design of lean manufacturing processes. The unique processes of "IPS Lean" include the following major elements:

1. We have developed a process called **"Inceptioneering"** which is a great tool to start a project on the right path from an early stage. This tool is used at the beginning of a project to give it business shape. The Inceptioneering process requires little time and money and is used to develop a workable solution and budget that achieves benchmark alignment with management, quality and finance. We utilize our subject matter experts to get to a quick floor plan and a process solution. Inceptioneering also includes an implementation schedule, a regulatory position and an order of magnitude overall project cost.




2. The second key process in our Lean Project Delivery methodology is the use of "**Target Costing**". Inceptioneering provides the financial litmus test and a target budget is then developed during the Concept Phase and before the Basis of Design phase. This is a significant effort in which we develop line item costs of various trades which then become the controlling costs or "Budget Qualification" for all subsequent Design & Construction. Use of this process has a profound effect on Lean delivery as it eliminates a number of cost estimating, follow-up value engineering and subsequent redesigning efforts. The target estimate must be aligned with the complexity and quality desired for the project. It should be noted that our expertise in pharmaceutical and biotechnology projects; our benchmarking data of relevant and current costs; and our knowledge of options available to mitigate cost issues are vital in developing this key target costing.
3. We use a special technique of procurement and construction which ***removes the traditional boundary*** between design/engineering community and the sub-contractors and vendors. In this process, IPS gets the sub-contractors and vendors involved early during the design phase. This collaborative effort between the engineer and sub-contractors simplifies design and construction coordination and virtually eliminates the wasteful RFI transactions which are a major cause for delays and confrontation. Use of ***BIM technology*** has been a great tool for this particular Lean Process. Use of BIM in collaboration with sub-contractors and vendors eliminates duplication of efforts and enhances the coordination between disciplines and trades in the field due to the inherent acceptance of all parties in the collaborative effort.
4. We also developed a method by which we can ***leverage the vendor's*** **capabilities** in terms of certain aspects of the design effort and also by utilizing factory-built modules. The idea is to get the best company to perform the various engineering tasks and ***do it once***. The traditional approach often requires vendors and sub-contractors to duplicate the effort of the designers/engineers and often threatens vendor accountability in fabrication and functionality.
5. Another key element in our Lean System is the use of certain principles of the ***ASTM E2500*** C&Q guideline, which is primarily designed to reduce waste in the compliance area. The guideline is based on a "risk based" approach that limits the time consuming regulatory activities to systems and equipment that are critical to the process and product safety. The E-2500 guideline also allows concurrent IQ activities which reduces compliance timeline and has life cycle cost benefits due to reduction in change controls.
6. Last but not the least is the issue of timing of the decision making process. Many practitioners believe that all project decisions must be made during the early basis-of-design phase in order to achieve Lean project delivery. Our years of experience in the total project delivery cycle tell us that it is not necessary to make all decisions upfront. In fact, pushing some of the decisions earlier than necessary often results in rethinking and rework. Reperformance of any function is obviously inconsistent with the core principles of Lean. IPS believes in ***making proper decisions at the right time*** and with adequate support information to make the best decision. IPS can guide clients to make the proper decisions at the right time.