Brillig Systems
Making Projects Successful

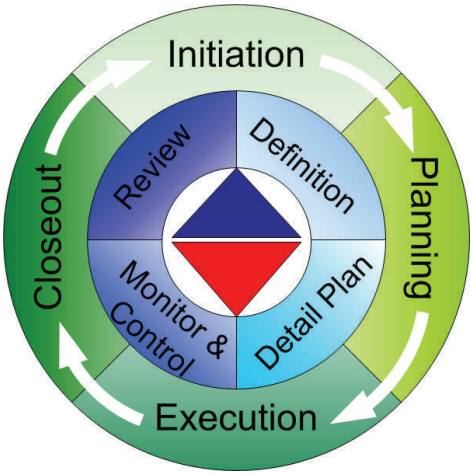
Case Study—Successful Management of Upgrade Projects in the Biotech/Pharmaceutical Industry

Brillig Systems is a privately held company with headquarters in Greenville, South Carolina. It was founded with the underlying principle of providing high quality professional services to manufacturing and industrial clients. Our world-class professionals are recognized throughout North America and Europe as among the finest available.

Upgrade projects have special characteristics that make them difficult to manage. Typically:

- There is little time to switch over from the old system to the new one.
- The new system will have much more functionality than the old one; many projects become derailed when the users want all the latest "bells and whistles" without being aware of the consequences.
- CSV processes and procedures may be different for the new system.
- Users and operators are not familiar with the new system and extensive training is required.

Brillig Systems will make your upgrade project successful. We provide professionally registered project managers who can not only successfully manage projects but also understand what they are managing. Many of our project managers are engineers and technical experts in their fields. Our particular strength is managing process automation projects involving design, construction, installation, and commissioning of computer systems that control manufacturing operations.



The next sections of this document illustrate the experience and wisdom that Brillig can utilize to turn your upgrade project into an on-schedule, on-budget, successful addition to your company's manufacturing capability.

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Primary Considerations to Ensure Successful Upgrades

General

1. Hold a construction safety review well before the start of construction. Unforeseen safety issues will hamper progress.
2. For maximum efficiency an integrated schedule is needed for the shut-down portion of the work to show the interactions between software installation/testing and any physical work to be undertaken.
3. There is no substitute for good planning.

Hardware

1. It is often possible to leave I/O wiring (plus connectors) and instruments in-place and replace the control system only from the interface cards onwards.
2. Develop a detailed decommissioning plan for the old system.
3. Give serious consideration to staging all the new equipment (in a live state) close to the existing old equipment. If some of the old equipment is to be retained (I/O connectors, wiring, etc.), consider building a mock-up that can be used to practice D&R of the old system and installation of the new one.

Software and CSV

1. Get knowledgeable people (process control engineers, process engineers, and operators) from manufacturing to assist with development of Functional Specifications and to participate in reviews.
2. Have a good scope control process. Users **will** want to expand the scope of the project to compensate for problems with the old system. Without controls, the cost and schedule will increase significantly.
3. Software development has a reputation for being late; track it closely with metrics, reports and regular status meetings.

Commissioning and Qualification

1. Involve C&Q early. (P&ID review I/O database, qualification package development, etc.)
2. Pre-shutdown readiness review is vital. All parties, including manufacturing, need to be involved.
3. Use the integrated schedule to start dry loop testing as soon as possible.

Brillig Systems provides the project management skills required to ensure that your projects are delivered on time and on budget. We can assist in Concept, Preliminary Design and Commissioning— all phases of the project lifecycle.

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