



engineering



ICC

lasting results

Design to Completion: **ICC**'s 3D Modeling Approach

“What new technology does is create new opportunities to do a job that customers want done.” – Tim O’Reilly



26 years ago, a team member at **ICC** led the construction of a blood plasma plant for Bayer using 3D modeling design. At the time, CAD was still in its infancy, but **ICC** clearly saw its potential as a game changer. The success of that project proved to **ICC** that computer modeling could not only be extremely useful internally for project control, it could significantly enhance the client experience and enable delivery of completed projects more quickly at significantly lower costs. From that day forward, **ICC** believed Smart 3D modeling is invaluable in the work we do. As a result, we've continually dedicated resources and funding to developing innovative ways to utilize it to deliver more value to our clients.

Today, **ICC** has designed over 1 billion dollars in Smart 3D/BIM-based projects and is one of the leaders in computer based model engineering for the process industry. Using smart 3D modeling, we've been able to provide our clients with shorter project schedules, reduced reliance on field contractors, less onsite construction risk and cost, higher quality installation, as well as better control of contract growth. In addition, because we can incorporate the client's knowledge base into the model, our clients feel more involved in the design process, which reduces design changes. Overall, we've been able to complete projects up to 50% faster with savings of up to 25% on total project costs.

We believe our success with Smart 3D modeling is a result of a combined strategy that integrates our scan teams and our design teams, as well as utilizes our in-house technology and our technology expertise to customize programs to work within our specific requirements. This approach not only sets us apart in the industry, it's yet another way we prove our commitment to always raising the bar to deliver above and beyond client expectations.



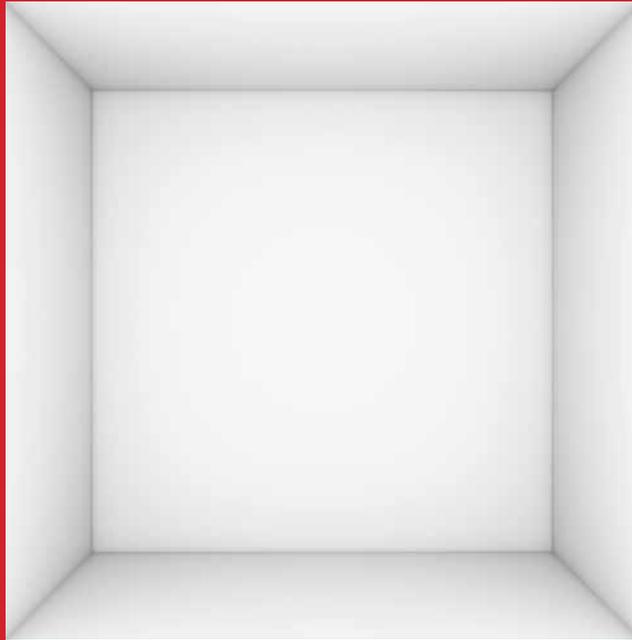




A Team of Extraordinary People

“Some people can do one thing magnificently, like Michelangelo, and others make things like semiconductors or build 747 airplanes -- that type of work requires legions of people. In order to do things well, that can't be done by one person, you must find extraordinary people.” – Steve Jobs

The ICC SmartBox: Fast, Precise Project Delivery



“An organization’s ability to learn, and translate that learning into action rapidly, is the ultimate competitive advantage.” - Jack Welch

With each project **ICC** completes, we take the time to assess our strengths and weaknesses. This reflection is what drives us to continually evolve, improve and get better and better at what we do. While our initial expertise was in the brewing industry, we have grown into a diverse, full-service engineering company with the knowledge, skills, and expertise to deliver exceptional results in a multitude of industries.

Today, we clearly understand the standards Pharmaceutical companies must adhere to in order to do their work successfully. We recognize delivering every project in highly compressed timelines, and being on budget at the same time, is simply not enough. We know, to be considered successful, our solutions must also satisfy the overarching goals pharmaceutical clients set for themselves and, thus, for **ICC**. In order to deliver to these standards, we believe our project management must be as transparent and as elegant as the design itself. That's why we invest in identifying and employing the most experienced Project Management professionals, and in continuing to improve our PM SmartBox of robust project management tools.

With SmartBox, **ICC** PMs can integrate weekly deliverables into our project schedules.

Instead of the work stream being shown as a single continuous line, often months long, from kick off to completion, our SmartBox timeline shows finite bits of work assigned in 40-hour weekly streams. This small, but relevant change enables our PMs to review weekly progress reports and provide more short interval control. More importantly, it offers our clients greater transparency by giving them the ability to quickly see if we are delivering on our promises. Using the entire suite of SmartBox tools **ICC** can offer clients the most timely, concise, and complete communication in the industry. The result is even the most complex projects are delivered on time, on budget and with minimum surprises.

"Based upon my global CAPEX experience, the **ICC** PM Smartbox is one of the strongest and most professional PM tool boxes I have experienced and has delivered our projects on time, and at the right price and quality." -- Jao Guimmaraes Unicer Group, Portugal





Engineering Lasting Results: A Case Study

“Efficiency is doing things right; effectiveness is doing the right things.” - Peter Drucker



Project Overview:

One of the world's largest pharmaceutical companies was looking for engineering solutions that could improve their biotech manufacturing systems by enabling more flexibility, thus increasing productivity. They turned to us to assess their systems and develop a plan that would allow them to accomplish this goal.

Our Solution:

After a thorough review and analysis of their manufacturing processes, it was clear our client would benefit from upgrading to a DeltaV system. The solution we presented, enabled by DeltaV, included a multitude of strategies that, once developed and implemented, would streamline the entire manufacturing process, make it run more efficiently, and save both time and money. However, migrating to this system required extensive restructuring of their manufacturing processes. After presenting our solution, the Great Britain-based company commissioned us to design our proposed solution.

We delivered:

- Customized DeltaV standards and software for their facility including, automation philosophy, control modules, equipment modules, standard phases and recipe strategies
- Strategies to track equipment statuses and automatically restrict operations on equipment not in the appropriate status
- Programs that minimized the number of formulas and recipes by auto-identifying partner units during inter unit operations.
- Detailed functional requirements for the upstream processing areas including the fermenters, media tanks, salt tanks, dextrose tanks, COP/SOP stations and a centrifuge system.

- Plans to create common CIP functional specification for multiple CIP skids in the facility, as well as adding functional specifications for the utility systems including the WFI and PU generation and distribution systems.

Our Results:

The facility is now able to manufacture different products seamlessly in the same facility. Equipment utilization is up and they can produce more, and do it more quickly. The standards we developed make programming simpler and allow quicker modifications to the software. Before our solution was implemented product changes from Product A to B involved a shut down of the facility and extensive time to make changes to the software. Once changes were made and Product B was being made, there was no way to manufacture Product A again without another shutdown and additional changes to the software. Our design enables them to switch from Product A to product B without extensive modifications and then back to Product A without any changes to the software at all.

The success of this project led the company to look to us again when they needed to upgrade another manufacturing system. They had seen the capabilities of DeltaV in action and asked us to migrate this system over as well. In completing this 2nd project we developed a DeltaV software library along with design standards that will continue to assist them in the complete automation of the biotech facility in the future.



ICC

Engineering Lasting Results



**Panacea
Technologies Inc.**
automating your world