

## California Health Care Facilities Program – The Experiment

### *“Lessons learned” on a major facilities program*

This unprecedented program utilized several unique delivery methods, many of which are relatively experimental within the construction industry. An appropriate analogy for this program would be a science experiment where more than one variable is changed simultaneously. Below are the conclusions I have extracted from this “experiment” and how these lessons can apply to future construction programs.

The origins of this California Health Care Facilities Program came about from a 2005 class-action lawsuit brought against the state of California on behalf of inmates within the state prison system, demanding minimum constitutional-level health care. A federal judge found against the state of California and in favor of the plaintiffs, ordering that 10,000 health care beds and other facilities be provided at seven existing prisons in the state of California. They are unique in the sense that their focus is intended to be healthcare with a security underlay, as opposed to a prison facility with a healthcare underlay.

Because the compelling reason for the ruling was the appalling current mortality rate in California prisons, at a rate as high as six unnecessary deaths per day, there is an acute emphasis on the timeframe in which these new facilities are to be constructed. Therefore, the “owner” (a Receiver appointed by the ruling judge) decided to deviate from the typical project delivery method and opt for a “Co-Opetition” between three teams, each following the “Integrated Project Delivery” method (these terms are defined and described below). The logic behind this decision was not only that the program could be designed and delivered faster and more efficiently via this method, but also that it would generate more innovative designs and construction methods.

The following is a summary of the definitions particular to this program, as well as a description and critical analysis of the pros and cons of each methodology used.

#### Integrated Project Delivery (IPD)

**Definition:** Integrated Project Delivery, commonly referred to by its acronym “IPD” refers to the process of managing design and construction by a unified team composed of general contractor (GC), architect, engineers, and key subcontractors (typically mechanical, electrical, and plumbing) under a single contract with the Owner. It is very similar to design-build delivery, but expands beyond a prime sub relationship between the GC and the architect so that all parties share risk and reward commensurate with their expertise. In this instance three teams were selected. The three teams were led by: DPR, Hensel Phelps, and a joint venture between Clark and McCarthy.

#### **What Worked:**

- *Working within Proximity to the Design Team.* The physical layout of the office space placed all parties together in an open environment, where questions of clarification were as easy as shouting out to an architect across the table, “Hey Joe, which rooms of the patient treatment area need to have radiation shielding.” This cut through the red-tape of submitting RFI’s.
- *Relationships with Team Members.* More so than a traditional project, stronger relationships were formed by seeing other members of the IPD team face-to-face everyday. This helped establish rapport, and open lines of communication.

## What Didn't Work:

- *Lack of Communication Hub.* While there was a team leader in charge of each IPD team, no one individual was identified as a single point of contact for all communications. Without a clearly defined team leader taking the reigns on disseminating important information amongst the entire IPD team, critical pieces of information often fell through the cracks. Comments such as “did you get the latest drawings for the housing support” were as common as “no, I wasn't copied on that email.” At best this meant wasting valuable time hunting down information, at worst it meant basing several days of work off of outdated information.
- *Lack of Documentation.* Often the informality of quick questions and impromptu meetings didn't lead to any follow up so that the *rest* of the IPD team was aware that a decision was made. There was often a time-consuming process required to track a decision back to its source and verify that a decision was made by someone with the appropriate authority to do so.
- *Lack of Internal Analysis.* A system for raising concerns should have been in place from the beginning so that team members didn't feel they had to wait for a formal review of the process by a top manager. One architect said it perfectly in his own critical analysis: “every team member should feel empowered to pull the cord and stop the train if they can see it's off the track.”

## Co-Opetition

**Definition:** The term “Co-Opetition” (as far as I am aware) is unique to this program and refers to the three independent IPD teams working in the same physical space towards the common goal of providing their own design and delivery vision for the program. The “co-op” portion of the word implies how all three teams ultimately had to work together to arrive at a single prototype design for a corrective medical facility which would be applied to seven different sites. The “-tition” portion of the word implies that the teams would also be engaged in a competition for their design elements to “win” and be carried forward, and to “win” their desired project site.

It is worth noting that “Co-Opetition” was the general philosophy from July through the month of November, at which point the three IPD teams essentially combined into a single, “cream of the crop” team that all worked together rather than independently in the design process. It would be accurate to say that after November the “Co-Opetition” ceased and the “Co-Operation” began.

## What Worked:

- *Sharing of Methods and Resources.* The open nature of the work environment meant that each team really didn't have “secrets” that they kept from the other teams. Sketches and print-outs of computer generated models were posted openly on the wall, and other teams were welcome to walk by and plainly see the methods used by their “competition.” As the teams merged later in the process, resources between no less than *ten* architectural firms, *four* general contracting firms, and various subcontractors were shared in order to achieve the tight deadlines that otherwise might not have been feasible.
- *Creative Optimization.* This was the original intent of having competing teams work concurrently on the same design problem. For example, one design team might come up with a creative method of bringing natural lighting into the housing cluster space, and another team might come up with a layout that allows for direct supervision of prisoners from all angles. Within the “Co-Opetition” there was no need to sacrifice either of these unique ideas, since the owner would pick and choose the best ideas as the design progressed.

## What Didn't Work:

- *Co-Opetition Intent Stifled by Imposed Guidelines.* This was ultimately the core problem that led to the three teams merging into one. A group of representatives from the owner's side (security consultants, health care consultants, nurses, etc.) would sit down with each team and give mandatory design direction for what the facilities needed to look like and how they needed to function. As these design directions became more focused and specific, they led all three teams closer to the *same* design solution defeating the intent of the Co-Opetition. One example was their directive that an officer in the housing clusters must be able to see all angles of the space from any location (the owner group's interpretation of the phrase "direct supervision"). This single decision ruled out all previous design layouts in the shape of an "L", radial spokes, and other promising ideas, and ultimately floor plans from all three teams looked very similar. By the time it was decided that this directive could be relaxed, it was too late to explore some of the earlier designs that showed more potential for cost savings and functionality.
- *Lack of Leadership When Teams Merged.* Once the three teams merged into one there was no obvious leader appointed. Thus design teams would still argue over whose ideas to use, and there was no independent leader to make this decision. Until early December, while technically one team, the three teams continued to work independently under their own leadership. This was a clear case where a member of the owner group could have taken the reigns of the three IPD teams to bring them together rather than assume they would all be able to do this on their own and without an appointed leader.

### Lean Construction

**Definition:** Lean Construction refers to the effort to improve the efficiency of the construction industry, for both time and material resources. Some example strategies for "going lean" include document management systems with less red tape (such as the A3 system described below), material delivery systems that rely on automated warehouses to compile delivery kits and only deliver when ordered by the foreman ("Just-In-Time delivery"), and "Pull-Planning," a scheduling method which works from the completion date of the project backwards and thus challenges the traditional "critical path method."

#### **What Worked:**

- *Good Intentions:* In principle, the philosophy of lean construction is something that the industry will have to face soon. Compared with the evolution of the manufacturing industry, the construction industry has indeed lagged behind with regard to the degree of automation and improved efficiency.

#### **What Didn't Work:**

- *More Concern with Terminology than Results:* Lean terms were thrown around the job constantly throughout this project. Training sessions were constantly being scheduled to discuss issues as simple as new vocabulary. Terms like "pull planning" were used with such reverence that few people rarely took the time to question whether or not they were more effective than the traditional method. Much of this came about from a steep learning curve from those not familiar with Lean Construction.
- *Tools Were Used Before They Were Understood:* The concept of A3's is a perfect example of this point. Without getting into too much detail, A3's are a method of communicating proposals and conveying information on a single sheet of paper in a more streamlined and easy-to-grasp method than traditional RFI's or reports. The Toyota Motor Company model was used as a point of reference for how this process could be applied. However, since only a small group of people interested in the A3 method convinced the owner into making this process universal for everyone it was not fully embraced by all team members. The result was that traditional tools which were

well understood (RFI's for example) were simply crammed into the layout of an A3 report, not only defeating the purpose, but also creating twice the amount of work and red tape. A simple question would be met with the challenge "Did you write an A3 on that?" which in turn would be met with a grumble. The end result was a tail that ended up wagging the dog instead of the other way around.

- *Acceptance Was Not Universal:* Unfortunately, on a team project such as this, the value of "Lean" is only realized if all parties involved accept the philosophy starting with the leadership. Perhaps if lean construction becomes more universal and not involve such a staggering amount of training and rework, it will become a more accepted standard to use in the construction industry.

***Alan Plummer***  
CUMMING