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P²SL REPORT: CURRENT BENCHMARK IN TARGET COSTING

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The University of California, Berkeley's Project Production Systems Laboratory periodically publishes a description of the current benchmark in each project management process that is a subject of research. This reports on the current benchmark in Target Costing.

In the building sector, it has been customary for architects to work with clients to understand what they want, then produce facility designs intended to deliver what's wanted. The cost of those designs has then been estimated, and most often, found to be greater than the client is willing or able to bear, requiring designs to be revised, then recosted, and so on. This cycle of design-estimate-rework is wasteful and reduces the value clients get for their money. Cost has been an outcome of design. Target Costing is a management practice that seeks to make cost a driver of design, thereby reducing waste and increasing value.

Current Benchmark

How best to do Target Costing? P²SL's research on this question supports the following description of the current benchmark.

1. The client evaluates the business case and decides whether to fund a feasibility study.
2. The feasibility study involves all key members (designers, constructors, and client stakeholders) of the team that will deliver the project if the study findings are positive.
3. The client is an active and permanent member of the project delivery team.
4. The feasibility study produces a detailed budget aligned with scope.
5. All team members understand the business case and stakeholder values.
6. A cardinal rule is agreed upon by all performers – the Target Cost cannot be exceeded.
7. Cost estimating and budgeting is done continuously through intimate collaboration between design professionals and cost modelers—'over the shoulder estimating'.
8. The Last Planner system is used to coordinate the actions of team members.

To implement these components of the current benchmark involves a radical change from traditional practice. Consider the following:

- Clients spend more time and money in the project definition phase of projects than they traditionally have done.

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- The major players on the project delivery team are not selected through competitive bidding but rather through value based proposals.
- Architects relinquish their exclusive access to clients.
- Design professionals embrace true collaboration with facility users, suppliers and builders – collectively exploring problems and jointly developing solutions.
- Suppliers and builders understand and respect designers and learn how to contribute and participate in project definition and design processes.
- Design solutions are developed with cost, schedule, and constructability as design criteria.
- Designers' work is restructured based upon completing smaller batches of design documents and releasing work to other members of the team.
- General contractors allow and encourage specialty contractors to have an equal seat at the table.
- The incentives of all team members are aligned with pursuit of project objectives.

To successfully make these changes requires special effort. The following have been observed to be effective:

- Clear understanding and frequent reminders of customer value.
- Clear statements up front, plus frequent reminders, about the nature and extent of the changes required in attitudes and behaviors.
- Standard processes to encourage collaboration and measure progress toward target cost goals.
- Inclusion of team members (designers and constructors) in user group meetings and other occasions where they can hear and see for themselves what is of value to the customer.
- Empowering and requiring team members to declare breakdowns; i.e., to speak up when they perceive that agreed criteria are not being followed, that value is being sacrificed or waste is being generated.
- Education, coaching and building trust among team members.

Specific tools and techniques used to do the work of planning and designing include:

- Space planning based on contents and use, not historical standards
- Reverse phase scheduling
- Fixed schedules for user group meetings
- Room data sheets as records of agreements, signed off by users
- Weekly coordinating meetings with strict documentation of commitments

Going Beyond the Current Benchmark to Better Practice



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We do not believe that the current benchmark is the best that can be achieved. Indeed, given the lean principle of continuous improvement, better practice is always possible. Based on research to date, we offer the following hypotheses to be explored and experimentally tested:

- Can industry advisors play a useful role in client business planning?
- How best to select project delivery teams; e.g., test for compatibility, engage self assembled teams?
- How best size and manage contingency to achieve target costs?
- Hypothesis: Implementation of Target Costing will reduce variability of work flow, and reduce the uncertainty of project ends and means.
- Hypothesis: The contingency needed to absorb variability will decline as variability is reduced.
- How to improve on current benchmarks as regards the integration of cost modeling and designing?
- What information technologies can be used to support Target Costing practices; e.g., integrating product, process and cost models?
- How best to assure that the use of the facility is explored and agreed upon before attempting to design the facility itself?
- Involving downstream players in upstream processes produces more detailed design earlier than in the past. Now that the level of detail and accuracy achieved in feasibility is equivalent to that previously achieved at the end of schematic design or even into design development, are those traditional phases or phase names still appropriate, or do they cause confusion?
- Does the investment in upstream processes pay off in a) the avoided costs of bad projects that are not allowed to continue, b) in the increase in value from more effective processes for articulating values and controlling design and construction to the delivery of those values, c) in the reduction in waste from incomplete and inaccurate drawings, from duplicated efforts, from rework, d) from more reliable delivery to quality, time and cost expectations, e) from the ability to respond more quickly to changes and discoveries?
- Is co-location of project delivery team members beneficial and feasible?
- How do we collaborate when team members cannot co-locate regularly?
- Is an evergreen, ranked list of stakeholder values beneficial and feasible as a tool for value management?
- Can the concept of accurately estimating future cost based on benchmark practice be effectively implemented?
- Is the practice of setting a target cost below a current benchmark budget ("expected cost") in order to drive innovation beneficial and achievable?
- Is the alignment of incentives through forms of relational contracting measurably effective in generating increased value and eliminating more waste than when incentives are not aligned?
- How/can value engineering/value management tools and techniques be beneficially and practically applied in the Target Costing process?



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- Is it better for specialty contractors to be engaged on a design-assist or a design-build basis?

Future Research

P2SL proposes to lead further development and use of Target Costing in construction by:

- 1) Doing research to gain an understanding of benchmark practice in other industries such as automotive
- 2) Translating benchmarks from other industries for use in construction
- 3) Facilitating experiments to gain additional learning and proof of concept for construction
- 4) Documenting case studies outlining the approach and benefits
- 5) Developing guidelines for successful implementation and use of Target Costing in construction

We propose to do this by creating an industry advisory board consisting of a cross-representation of the industry to guide this effort. Securing funding from organizations such as owners desiring to gain better ROI from their capital projects and service providers interested in competitive advantage through early adoption of the power of Target Costing.

If you would like to participate in the P2SL Target Costing initiative please contact Glenn Ballard at ballard@ce.berkeley.edu or (415) 710- 5531.