

Design Delivery - What Really Works?

Project Team:

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Project Abstract:

This research will focus on determining what the most appropriate project delivery method is for a specific project according to its criteria within the scope of traditional design-build, progressive design-build, and CM at Risk (CM/GC). This research aims to determine how different project delivery systems help achieve values for various project members, including the owner agency, design team, and general contractor. With progressive project delivery systems becoming more commonplace, this study will focus specifically on the traditional design-build, progressive design-build, and CM at Risk (CM/GC) project delivery methods to determine which responds most appropriately to the values of the project team.

Research Proposal:

In partnership with Mithun, this research is not to determine a one-size-fits all approach, but instead to look within the scope of a given project and determine, in accordance with the values of the different members of the project team, how the best project delivery method can be selected by looking at how "best value" can be achieved. In terms of the scope, this research will be focused on higher education projects of new construction, primarily from the West Coast of the United States that fall within a project price range of \$50 million to \$150 million. Cost and schedule are traditional attributes of project delivery methods which are compared, however, this study will look further into the qualitative, or abstract variables involved in a project's

“success” within the different project delivery methods. These include factors such as perceptions of project success, potential for lifecycle values, design-related values, and construction success.

Research Questions:

1. What specific values do traditional design-build, progressive design-build, and CM at Risk bring to clients and to project teams in high education projects?
2. What are the criteria that need to be established in order to determine the best project delivery method for a higher education project?
3. How can identified values and criteria point to better-informed RFP and teaming processes?

Proposed Methodology:

1 - Literature Review:

Review various articles and primary resources to clearly understand the different project delivery methods, and specifically see how the different project delivery methods perform alongside one another. A clear gathering of information during this step can properly set the stage for the next steps in the research process, including setting up a survey and discerning what information can be gathered in a case study. The literature review can also provide some insight into how surveys can be conducted, and which variables should be considered, whether they be qualitative or quantitative.

2 - Preliminary Research Database and Research Criteria:

After documenting information gathered from the literature review, it is essential to determine what variables are critical to measure and evaluate with the target members of project teams. This will help to inform the trajectory of the interviews, surveys, and case studies so that there can be a clear focus when conducting the studies. In conjunction with establishing these “best value” variables, it is also important to formulate a project database of different built projects in the designated region of study. By consolidating this information gathered directly from specific contacts and data searches online, data such as project name, client/owner agency, location, price, and completion data can all be consolidated in an appropriate table.

3 - Interviews:

Interviews can be conducted with the clients/owner agencies, the design team, and the general contractor on a specific project, in order to determine the satisfaction level of each team member throughout the project process. It may be useful to determine a satisfaction criteria chart and ask teams that are implementing different project delivery methods to figure out where the pros and cons of each design delivery method lie. The outcome of the interviews can be an appropriate guideline for a survey. Because the primary focus of this research is to obtain quantitative data on qualitative values for the given project delivery methods, it is key that verbal clarification by the interviewees can be gained to understand if the best value was attained throughout the project delivery process.

4 - Case Study:

In order to limit the broad scope that a case study can take, a single case study per each project delivery method in question (traditional design-build, progressive design-build, and CM at Risk) is planned, within the West Coast. Although there is a general focus on the West Coast of the US, other regions such as the Mountain States, East Coast, and SE (i.e. Florida) can be observed to see how these various project delivery methods are being implemented, and which methods are more prevalent in the given regions. Particularly because certain project delivery methods are more prevalent or not as prevalent in certain areas of the United States, it would be interesting to research which states are breaking the boundaries of what design delivery methods are typically used and seen on a University campus. The case studies can serve as a method of determining a useful criteria for how the surveys can be conducted.

5 - Comprehensive Survey:

A survey will be distributed to potential interviewees to collect information or raw data that can be documented in a chart format or a data table. The survey will be conducted through an online format such as Google Forms with a Likert satisfaction rating survey or by recording percentage changes (i.e. percent change in final cost versus projected cost). Establishing a quantitative versus an abstract or qualitative standard of evaluation can be key in determining which variables would like to be considered in a survey, and how these questions would want to be categorized. For instance, depending on the role of the person being interviewed (i.e. client/owner agency, design team, construction team, etc.) qualitative questions can be asked regarding the overall satisfaction in the outcome of the project, as well as satisfaction in the collaborative involvement in the project. The quantitative portion of the survey, which can include variables such as percentage of cost change and percentage of schedule change are variables that are complementary to the qualitative data received from the survey respondents.

Toolkit:

- Google Forms (surveys)
- Google Sheets (project database)
- Project databases received from other offices
- ZOOM (interviews)

(Tentative) Timeline:

	2021				2022					
	S	O	N	D	J	F	M	A	M	J
Perform literature review										
Develop interview questionnaire										
Perform interviews										
Perform case studies										
Develop survey tool										
Perform survey										
Analyze survey results										
Document and disseminate										