



CONSTRUCTION INDUSTRY INSTITUTE

IDENTIFYING SUCCESS FACTORS
FOR HIGH PERFORMANCE
PROJECT TEAMS

Construction Industry Institute

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Identifying Success Factors for High Performance Project Teams

**Prepared by
The Construction Industry Institute
High Performance Project Teams Research Team**

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Executive Summary

In the competitive world of construction, project teams have the specific goals of reducing project costs and schedules. Studies of performances by project teams in other industries indicate that one method of reducing cost and schedule growth is to establish high performance work teams in planning and execution. Those studies indicate that common characteristics can be found that differentiate highly effective teams from less effective teams.

CII, in its attempts to improve the engineering and construction industry, believes that project teams must go beyond simply implementing best practices. CII therefore established the High Performance Work Teams Research Team to: (1) identify common characteristics of high performance work teams in construction, and (2) to establish metrics that will help the industry realize the benefits of having project teams that achieve high performance. The research was to focus on reductions in cost and schedule that can be attributed to the high performance of project teams. "High performance" was defined by the majority of survey respondents as being 10 percent or better performance against established targets for cost, schedule, safety, customer satisfaction, and rework, where the targets had already been aggressively set.

This research team found two significant predictors of reducing cost growth: (1) leader behavior and (2) the use of selected CII best practices. Specific findings from the High Performance Project Team research include the following:

- Projects whose leaders engaged in effective leader behaviors experience reduced cost growth.
- Projects that use the CII best practices of scope management and project alignment experience reduced cost growth.
- Projects that use the CII best practices of planning and project controls experience reduced schedule growth.

- No strong association exists between team member characteristics and project high performance.
- An apparent “trade off” occurs between cost and schedule in achieving high performance targets. That is, a project team may achieve reductions in cost or schedule, but rarely both, even in a high performance environment.
- Formal team building, in the absence of effective, consistent project leadership behaviors, is not a predictor of “high performance.”

The most significant finding of the work was the importance of leader behavior on project performance. Effective leader behavior, especially when combined with CII best practices and appropriate member characteristics, will greatly enhance the probability that project teams will achieve breakthrough results. The results of that effort led the research team to publish CII Implementation Resource 134-2, *Tools for Effective Project Team Leadership*. This tool kit contains guides on leadership selection and planning and a high performance work team checklist. The handbook also contains a tool to measure the effectiveness of high performance teams.

Introduction

Background

Project teams characterize the majority of work units in the construction industry. A team is usually created when a specific construction project is being conceptualized. Team membership changes as the project moves from concept to finished product. The performance of the project team has impacts on the time it takes to move through this cycle and on the cost of the overall project. A higher performing project team presumably can reduce project cycle time and/or overall project cost.

Research in various industries has shown that some project teams are more effective than others at achieving breakthrough results. It would be highly desirable, then, for a project team to be designed with this enhanced effectiveness from the outset. Findings that identify the key characteristics differentiating highly effective teams from less effective teams in construction or other industries, however, are rare. Even fewer studies identify why these characteristics have an impact upon team effectiveness.

Purpose of the Research

The purpose of the research was to determine methods for establishing high performance project teams that achieve breakthrough project performance, focusing on cost and cycle time reduction. Specifically, the objectives were to:

- Identify common characteristics of high performance project teams in construction and related industries.
- Define “high performance” for a project team in the construction industry.
- Identify tangible and measurable benefits of high performance project teams.

- Develop metrics to predict and measure high performance project team success.
- Develop tools and methods for the establishment of high performance project teams in the construction industry.

The process of effectively forming and maintaining high performance project teams in the construction industry has not been systematically studied. The impact of project team capabilities and performance on cost and schedule, however, can be expected to be significant.

Being able to form project teams systematically, to monitor their performance, and to suggest mid-cycle improvements has the potential to result in extraordinary reductions in project cycle-time and overall cost. Also, being able to quantify the benefits of high-performance project teams will help justify any potential increased costs to organizations that implement high performance project teams. The research undertaken here was intended to provide a starting point for learning how to implement these processes and how to estimate their benefits to project performance.

This research shows that the significant predictors of project performance with respect to cost and schedule growth are leader behavior and the use of CII best practices. The research team chose to focus its analysis on leader behavior since this has not been the subject of prior CII research.

Findings

Methodology

Structured interviews were conducted with members of nine project teams to identify team characteristics that lead to superior team performance. A literature search assisted the research team members in constructing the interview guide. The data were then used to construct a questionnaire, which in turn was used to survey project team members on a large scale. The survey produced data from 151 projects.

Structured Interviews and Theme Analysis. Eight project teams identified by industry peers as “high performance” (ranking high relative to other teams on a number of project outcome measures) and one project team identified as “not high performance” were contacted. These teams were from construction, manufacturing, and the military. Individuals were asked a number of questions regarding the project and the project team for which they were currently working. Data from these interviews were then coded to reveal the key areas (or “themes”) that seemed to lead to high performance in the project teams.

Projects included the construction of a large, continuous-production chemical facility, the installation of an organization-wide computer system, the design of a commercial aircraft, and the retrofit of a fossil-fuel plant. Project team size typically ranged from five to 10 members, and over one-half of the team members from each project team were interviewed.

The research team created a list of questions that might be suitable for exploring the research question. For example, what is it that makes a project team a high performance project team? From the interviews, a number of common ideas and issues emerged. These ideas were grouped into “themes” and given identification labels. The data from the interviews were then coded into the themes. The purpose of each

theme was to provide a classification label for a common idea or issue that was articulated in the interviews.

Interview data from 51 interviews were then coded onto the theme list. The research team could then evaluate the importance of a theme by the number of informants who mentioned the theme in the interview sessions. All retained themes were mentioned by at least one member of each team interviewed. The themes were then analyzed in terms of their relevance to research questions of factors leading to high performance project teams.

These themes, along with the findings from the literature review, served as the building blocks for the questionnaire used to survey project team members on a large scale. Table 1 summarizes the analysis of the interviews conducted with the project teams.

Table 1. Summary of Theme Analysis from Interviews

Theme
1. Team orientation: sense of belonging to a team, working well together 2. Critical Project Manager/Leader behaviors 3. Team communication: frequent team meetings 4. Ownership: sense that personal success is directly tied to project’s success 5. Location: co-location and/or physical isolation of team 6. Performed team building: • Formal • Informal 7. Competition: sense of competition with other or previous projects