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Organizational Strategies for Instantaneous Project Controls

Construction Industry Institute

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**Prepared by
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Executive Summary

Project controls information should be accurate, continuously generated, and effectively communicated during all phases to support good decision-making on individual projects, within portfolios, and across organizations. In highly competitive environments that require up-to-date information, data security concerns, ever-increasing reporting requirements, and narrow profit margins, stakeholders demand accurate and timely project data to support informed and proactive decisions. Project decision-makers should not have to wait until the next reporting period simply because the information they seek is blocked by information integration barriers, contractual hindrances, or ineffective data collection. To prevent the data “lag time” that can lead to bad decision-making, proactive organizations prioritize information to determine how often it should be generated.

CII established Research Team (RT) 316, Instantaneous Project Controls, to identify, synthesize, and prioritize the key strategies and critical success factors enabling instantaneous project controls and critical project metric reporting in the construction industry. The team's objectives were to investigate the state of instantaneous controls in the construction industry, establish their value, and offer guidance on implementing or improving an organization's capability for on-demand information. Industry organizations that currently implement instantaneous reporting on critical control functions do so mainly to improve project status awareness, enhance decision-making, and strengthen competitiveness. The most common target of these efforts is any highly variable control function that, if its variability is not addressed, can significantly affect project performance. For instance, if a cost deviation trend is too long ignored or not properly reported, management will not have time to plan and implement mitigation actions. Indeed, risk, uncertainty, and variability are at a peak during construction and commissioning and startup; hence, key control functions related to cost, schedule, and field operations during those phases are commonly chosen for instantaneous reporting efforts.

Following are some of the most common benefits of instantaneous project controls:

- timely and better-informed decisions, with more time available for data analysis than data collection
- improved cost and schedule performance
- effective project risk mitigation; efficient capital portfolio management
- competitive market advantage.

Although instant information delivery offers such significant benefits, it requires a considerable investment of effort and resources. Thus, organizations must weigh these benefits against the necessary investment, and then prioritize their efforts accordingly.

By surveying industry organizations and conducting case studies, RT 316 identified nine forward-looking strategies to facilitate continuous data feeds and instant (or at least prioritized) reporting frequencies. The team organized these strategies into the following three broad categories: organizational behavior; project controls; and advanced information technologies. To help organizations implement the strategies, the team also developed a maturity matrix that was, in turn, the basis of three tools: 1) the Quick Assessment (QA) tool; 2) the Instantaneous Quotient (IQ) tool; and 3) the Workflow Implementation Process. If properly implemented, these tools will help organizations optimize project execution effectiveness, overcome process-inhibiting barriers, and maximize the likelihood of meeting or exceeding project success criteria.

Introduction

Owner and contractor organizations alike rely on project controls functions to status the progress of work. Reliable project status reporting is critical for sound decision-making on individual projects, within capital investment portfolios, and across organizations. An efficient project controls process ensures that the appropriate stakeholders get the information they need when they need it; such consistently timely and accurate reporting gives an organization a key competitive advantage.

RT 316 defined project controls as a practice that encompasses the resources, procedures, and tools for planning, monitoring, and controlling all phases of a project; it includes the functions/practices of estimating, risk management, cost and schedule management, change management, and earned value progressing and forecasting. The research team also defined the continuous feed/collection of data and accurate on-demand reporting as instantaneous project controls functions.

CII established RT 316 to identify, synthesize, and prioritize the key strategies and critical success factors enabling instantaneous project controls and critical project metric reporting. The research team concluded that, although instant and accurate reporting can provide substantial benefits and give organizations a competitive advantage, it requires significant resources. Organizations should weigh the benefits they get from having reliable instantaneous project controls against the investment it requires, and should prioritize their efforts accordingly.

The research team tested two hypotheses:

- There are specific strategies or practices that, when properly implemented and supported with the right tools and processes, can result in an instantaneous project controls condition through which current and future project status information is adequately reported in a precise, reliable, and timely manner.
- The impact of instantaneous information expedites project team decision-making, optimizes adjustments in execution strategies, and maximizes the probability for project success, and as such, can be evaluated.

The four objectives of this research were as follows: 1) determine the current state of project controls among industry organizations; 2) assess strategies necessary for instantaneous project controls; 3) explain the value proposition for instantaneous controls; and 4) provide high-value tools and implementation guidance for CII member organizations and project teams alike.

In terms of scope, even though the initial focus was on estimating, risk management, cost and schedule management, change management, and earned value progressing and forecasting, it soon became evident that other project management metrics (e.g., quality and field productivity measures) are often monitored instantaneously and, thus, merited study.

Methodology

To satisfy its research objectives, RT 316 designed its research with several parallel lines of inquiry. (See Figure 1.) This methodology included three online surveys, statistical analyses, and multiple case studies. To



Figure 1. Research Method

be as comprehensive as possible, the team collected data from a broad range of industry sectors, organizations, and projects, with a balance of owner and contractor perspectives. To meet the four research objectives, the team took the following steps:

1. *Determine the current state of project controls and reporting.*

The team conducted a two-part online survey to determine the current state of project controls, with team members distributing the survey at their respective organizations. The project-focused survey asked about reporting frequencies to project managers, clients or other ultimate authorities. It also queried participants on their use of computing tools and information systems to support distinct controls and management functions. The 38 subject matter experts who responded to the survey had an average of 24 years of experience, and each addressed the same number of current or nearly completed projects. These projects were worth