



Construction Industry Institute®

Information Integration to Improve Capital Project Performance

Construction Industry Institute

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Information Integration to Improve Capital Project Performance
Research Team**

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Executive Summary

Capital projects execution involves the processing of massive amounts of data within and across many interfaces. Information integration—the combination of technologies, work processes, and supportive organizational structures and roles—is seen by many as a way of helping the industry speed project execution while also increasing quality and reducing costs. Research Team (RT) 258 reviewed the current state of information integration practice and found that performance is well below the potential of current technologies—even for leading organizations. *It is now up to the industry to develop the work processes to leverage existing technologies and move forward.*

Improvements in information integration require disciplined effort on the part of project teams and organizations if significant benefits are to be achieved. To help organizations make a systematic assessment of their current information integration practices and plan for new investments, RT 258 provides a process, a maturity model, and the Integration Opportunity Assessment Tool. These tools and associated assessments should aid efforts in corporate planning, education, and development of specific implementation plans. An important contribution of RT 258 is its explicit recognition that there are many steps through which an organization can achieve improvements in its information integration practices. (A corollary finding is that there is no single path forward—every organization is unique.) The tools and assessment processes reviewed in this document will help any CII member organization move forward, no matter its current state.

Introduction

CII Research Team (RT) 258 was broadly chartered to help CII member organizations improve their use of information integration on capital projects. Information integration is a broad topic that encompasses people, technology, and work processes. RT 258 defines capital project information integration as the sharing of information among project participants to support effective execution. Information integration is achieved with systems, work processes, and organizations that support the seamless exchange of and access to data. As such, information integration is not simply information technology, or IT, but is rather a systematic approach to supporting business processes and transactions across project participants.

CII member organizations are at different levels of performance with respect to productive information integration work processes. However, every organization faces significant challenges to understanding its current position and, once aware of it, to advancing effectively and efficiently. Organizations seeking to improve should ask themselves the following questions:

- What are our process gaps? What are critical interfaces that can be improved by information integration?
- We can think of numerous integration opportunities—how do we prioritize them?
- Information integration is complex—where do we start?
- What should drive our decision?
- Where do we stand among peers/others?

The integration challenges are real. Unfortunately, there is a lack of tools to help organizations analyze their current status and choose a path forward.

In response to this need, CII RT 258 has provided guidance by developing a detailed process and the necessary tools for information integration. These resources will allow any organization to assess its current status, identify a range of information integration opportunities (IOPs) to help it improve, and then prioritize and select specific IOPs for implementation. Specifically, RT 258 provides the following resources:

- The three-level Capital Projects Information Integration Maturity Model from which an organization can assess its overall level of information integration, as well as its specific level in eight functional areas. Review of the detailed maturity model can help an organization develop a portfolio of IOPs that are tailored to its specific situation and provide the basis for systematic planning and investment.
- The Integration Opportunity Assessment Tool (IOP Tool) that provides an assessment of degree of benefit and degree of hindrance restricting implementation of specific IOPs. The IOP Tool allows for relative assessment and prioritization of different IOPs, and produces a list of strongest hindrances as assessed for each IOP. This list can be used to develop mitigation plans.
- A set of case studies of information integration efforts that detail success across several critical execution interfaces. Case studies are associated with maturity model level and IOP Tool score so that they can be evaluated in the context of these tools.

Collectively, the process, tools, and case studies provide a significant advance beyond existing *ad hoc* information integration planning and deployment practices. While the tools and cases can be used to support narrow efforts, they are most beneficial when used to systematically assess an organization's integration opportunities and to prioritize its investment in information integration technologies and processes.

It is important to note the key differences between RT 258's approach and other visions for the industry such as FIATECH's Capital Projects Technology Roadmap (CPTR). The CPTR describes a future state for

fully automated and interoperable data flows across the capital project life cycle. It also addresses the technological developments needed to achieve this vision. The CPTR has little to say about work process changes, whereas RT 258 more explicitly addresses them. RT 258 also explicitly recognizes that organizations cannot achieve an end-state vision without taking several intermediate steps to get there. RT 258 tools complement other information integration visions, such as that of the FIATECH CPTR, by helping organizations assess their current state and identify and prioritize the discrete investments by which they can advance.

