

WHITE PAPER



Introduction to the Construction Readiness Assessment

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Introduction

Background

Construction projects have always faced pressure to begin early mobilization of the construction phase which can result in out-of-sequence work leading to cost and schedule overruns.

The decision to proceed with construction requires a standard, objective process that easily identifies the gaps that must be addressed to achieve construction readiness and supports the decision of when to move forward.

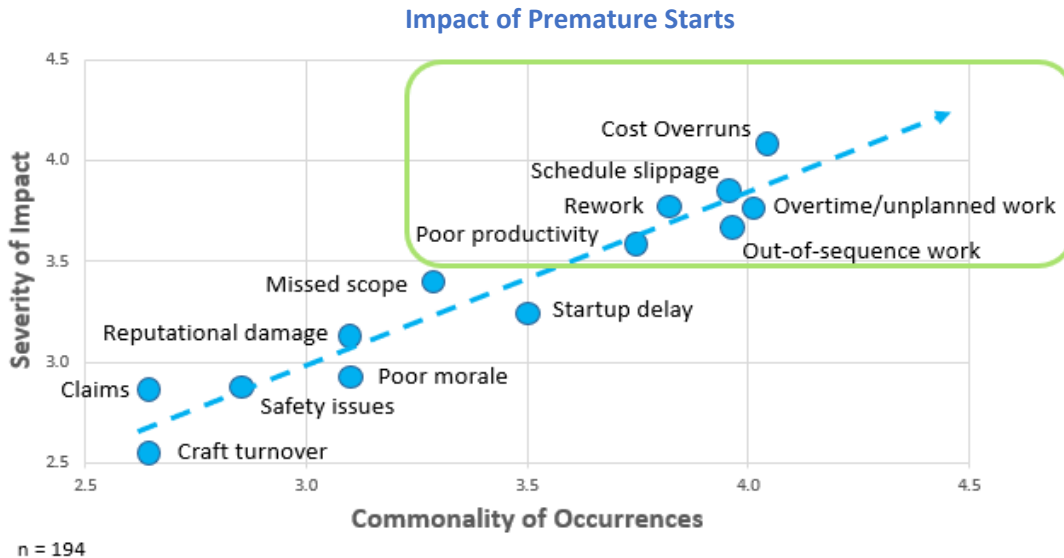
CII's Construction Readiness Assessment is a game-changer to guide project teams in achieving construction readiness with confidence. Their research shows that construction-ready projects outperform projects that are not ready with 20% better cost performance and 22% better schedule performance².

What is the Construction Readiness Assessment?

The Construction Readiness Assessment (CRA) is a methodology for monitoring project health, preventing premature construction starts, and avoiding out-of-sequence work. The Construction Industry Institute (CII) defines construction readiness as “activities and procedures that should be completed or substantially completed prior to construction to productively start and sustain construction operations”. Leading indicators of construction readiness are reviewed by the project team to identify areas where action is required for the project to achieve the desired level of readiness and ensure a productive start to construction.

Why is Construction Readiness Critical?

The desire to start projects early often leads to premature construction starts, which have tremendous impact on project performance. A 2016 study by the Construction Industry Institute (CII) looking at premature construction starts¹ helped the industry quantify the severity and commonality of the most common impacts. Cost overruns, schedule slippage, overtime and unplanned work, out-of-sequence work, rework, and poor productivity are among the most common and significant impacts projects face when they are not ready to start.



Performing a Construction Readiness Assessment helps your project team prevent premature starts by quantitatively determining if a project is “construction ready”. A 2018 CII study found that Construction Ready (CR) projects significantly outperform projects that are not construction ready², including:

- + 20% Cost Performance**
- + 21.5% Schedule Performance**
- + 29% Productivity Improvement**

Who Needs the Construction Readiness Assessment?

CII’s research into premature construction starts included projects spanning infrastructure development, government funded renovations, and oil and gas midstream facilities. Any projects susceptible to premature construction starts will see performance improvements with use of the construction readiness assessment.

Assessment Methodology

Structure



Overall Readiness Score: 82%

CII’s Construction Readiness Assessment includes 228 factors that are divided into 15 categories. Each category has several related factors, with the factors being the lowest level at which construction readiness is assessed. A score is assigned based on the assessment of factors. The premise of the construction readiness assessment is that if an insufficient number of factors have been completed, poor construction productivity will follow.

Factors are worded as simple statements, as shown below from the Engineering category.

Category	# of Factors
Project Team	24
Engineering	17
Planning	27
Health/Safety/Security/Environment (HSSE)	20
Execution	21
Tools & Equipment	13
Quality Management	12
Change Management	15
Contract Management	15
Human Resource Management	17
Stakeholder Management	5
Risk assessment & Management	5
Procurement & Material Management	14
Commissioning	14
Project Controls	9

The screenshot shows the 'Assessment' tab for 'Category: 2. Engineering'. It displays a list of 9 factors with radio buttons for 'Yes', 'No', and 'N/A', and a 'Comments' field. The overall category score is 86%.

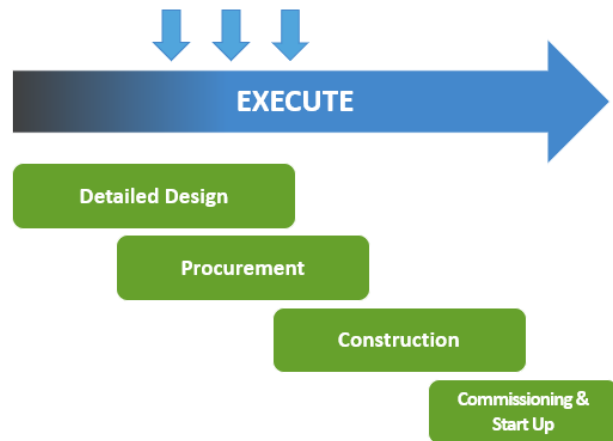
Factors Answered: 17 / 17	Yes	No	N/A	Comments	Actions	Exclude
2.1 Have all engineering milestones been developed?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>			<input type="checkbox"/>
2.2 Have all engineering deliverables in construction packages been defined?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>			<input type="checkbox"/>
2.3 Are standards and specifications needed to support construction clearly published?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	publishing next week		<input type="checkbox"/>
2.4 Have (issued-for-construction) IFC drawings been issued to the point that supports construction activity?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>			<input type="checkbox"/>
2.5 Is the schedule for design deliverables compatible with the sequence of construction?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>			<input type="checkbox"/>
2.6 Have clash and interference checks been completed?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>			<input type="checkbox"/>
2.7 Is there a procedure for the timely implementation of receiving vendor information?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>			<input type="checkbox"/>
2.8 Have commissioning and startup requirements been incorporated in the design?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>			<input type="checkbox"/>
2.9 Have discipline design interfaces been well coordinated?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>			<input type="checkbox"/>

When to Use

The Construction Readiness Assessment can be used at any point during the Execution phase of a project, including:

- Detail Design – as a checklist to identify factors that need early attention.
- Pre-Construction – to identify any missing readiness factors and focus on action items that will help ensure the project reaches the desired readiness level.
- Early Construction – to ensure that readiness is sustained with any late construction work packages.

To achieve best results, the first Construction Readiness Assessment in any project is recommended to be conducted starting at the 60% design review during Detailed Design phase.



The Assessment Process

The Construction Readiness Assessment is a straightforward process.

First, the assessment is led by a neutral facilitator who efficiently guides the project team through all of the factors. Using CII’s Construction Readiness Methodology, the facilitator captures the team’s response on whether each factor is present, not present, or not applicable to the project. At the end of the session, an overall construction readiness score is produced.

The assessment of all factors will clearly identify any categories that need improvement. The team reviews low scoring categories and missing factors to take action items that will address the gaps or deliverables required.

If the project has not reached the desired construction readiness level, the assessment should be repeated after sufficient time to address the action items. In subsequent sessions, normally led by the project manager, the team focuses on the missing factors from the previous session. Through this iterative process, the team will ensure critical gaps are addressed and that they are construction-ready.



Begin early in detailed design

Review categories that need improvement

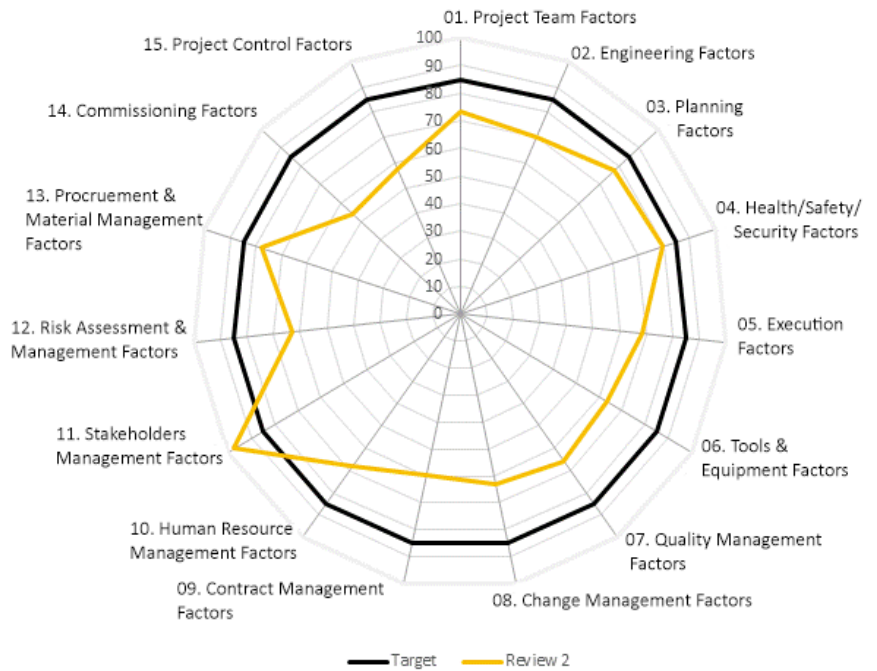
Prioritize action items to address the gaps

Reassess progress until readiness is achieved

Scoring

A project’s Construction Readiness Score is a single unified metric that is expressed as a percentage. It is the sum of all readiness factor weights and provides a standardized measure of construction readiness. Depending on the score, a project is considered to be “not ready”, “borderline”, or “ready”. This standardized scoring can be used to track construction readiness progress over time, or to monitor and compare the readiness of projects across a portfolio of projects or program. For any low scoring categories, the project team is provided with recommended best practices from CII to help address the gaps.

Construction Readiness by Category
Current Readiness Compared to Target



Fundamental and Readiness Factors

There are two types of factors that are important for construction readiness; Readiness Factors and Fundamental Factors. Both Readiness Factors and Fundamental Factors are included in the assessment. However, the score is produced using only the Readiness Factors. Fundamental Factors are not included in the score, but appear in the assessment due to their critical importance to overall project success.

Readiness Factors	Fundamental Factors
<p>Readiness Factors are key differentiators of construction-ready and not-ready projects. Each readiness factor is weighted and is used to calculate the overall Construction Readiness score. Some examples of Readiness Factors include:</p> <ul style="list-style-type: none"> • Have (issued-for-construction) IFC drawings been issued to the point that supports construction activity? • Is the schedule for design deliverables compatible with the sequence of construction? • Is there a system in place to align construction with commissioning and operations? • Have discipline design interfaces been well coordinated? • Are procedures for turnover (from construction to commissioning) well-defined? 	<p>Fundamental Factors are actions or tasks so integral to the process of construction that every project, regardless of whether it is construction ready or not, should perform them consistently. Examples of fundamental factors include:</p> <ul style="list-style-type: none"> • Is a support system in place to allocate resources? • Is there an environmental management plan in place? • Is there a site-specific safety plan in place? • Are there adequate communication tools in place (including tablets, Wi-Fi, radios, phones, etc.)? • Is there clear procurement process and supporting systems in place for deliver?

Benefits of Construction Readiness

The Construction Readiness Assessment will help your construction management group monitor construction readiness throughout the Execution phase of projects. It is a proven strategy to help projects avoid premature construction starts.

Performance Improvements

A 2018 study conducted by CII² using data from 80 projects, demonstrates that projects scoring 85% or higher on the Construction Readiness Assessment significantly outperform those scoring below 85%. Specifically, construction ready projects perform 20% better in terms of cost and 22% better in schedule.



COST PERFORMANCE

Ready Projects
Significantly
Outperform
Not-Ready Projects



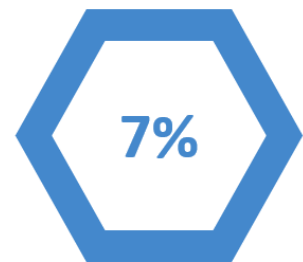
SCHEDULE PERFORMANCE



LESS CHANGE



PRODUCTIVITY
IMPROVEMENT



LESS REWORK

Increased Team Alignment

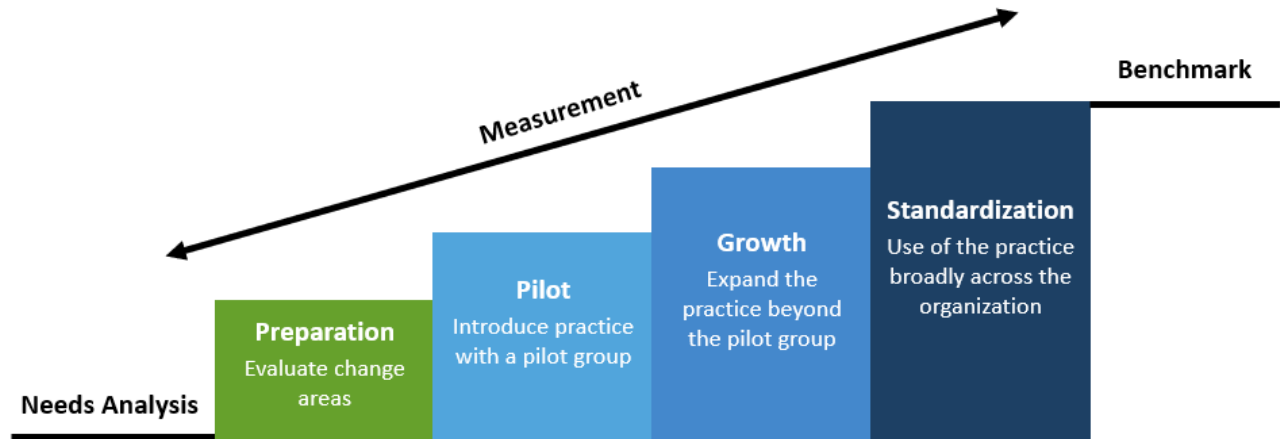
A facilitated Construction Readiness Assessment promotes alignment between everyone on your project team – regardless of whether you represent Engineering, Procurement or the Construction Contractor. The assessment process promotes open communication and allows the project team to objectively recognize incomplete or missing factors and identify action items.

Transparency

The Construction Readiness Assessment provides an ideal opportunity to clearly communicate project risks and action items to all stakeholder groups. The assessment results ensure everyone knows their responsibility and the actions necessary to rapidly reach a sufficient level of construction readiness.

Getting Started

The greatest challenge to introducing change in project management practices is developing an implementation plan that provides enough detail so that everyone understands the roadmap to success.



Needs Analysis

The best place to start in building a business case for adoption of the Construction Readiness Assessment is to evaluate your specific organizational needs. Consider performing a self-assessment on your organization's level of maturity in construction readiness:

- What is your organization's current direct work rate (tool time)? How does this compare to construction productivity across the industry?
- Are you experiencing the impacts of premature construction starts?
- Are you experiencing the impacts of out-of-sequence work?

Completing this needs analysis will also help identify the types of projects in your organization that would benefit most from introducing the Construction Readiness Assessment. This will provide the basis to prepare a business case that will help obtain management buy-in for implementation of this process.

Preparing for Change

It is important to consider the organizational impact that the Construction Readiness Assessment will have, and to identify potential change areas. This includes:

- Reviewing your existing work processes for engineering, procurement, pre-construction and construction
- Roles and responsibilities of all impacted stakeholders
- The applicability of the readiness factors to your capital program
- Terminology used in factor statements, and
- Acceptable overall readiness scores and category scores for your organization

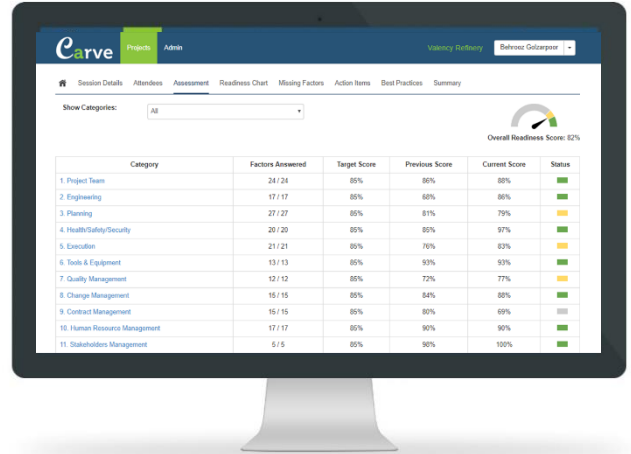
These steps will help ensure a smooth transition when introducing the Construction Readiness Assessment process.

Initiating a Pilot

A successful implementation of the Construction Readiness Assessment process should start with a limited-use pilot. Select a small number of projects that:

- Represent the main types of projects in your capital program
- Range in project size and complexity
- Vary in their current stage of Execution (e.g. during Detailed Design, 60 days from construction start, 15 days from construction start)
- Offer an opportunity to build a solid success story

Consider engaging an external facilitator for your pilot phase. The experience of your facilitator with the assessment process is an important success factor for your pilot. Finally, develop a strong communications plan. Selling the vision is critical to getting project stakeholders on board and attaining the success stories you'll need to move to the next step.



Growing the Implementation

The next step is to develop and execute a plan for growth that includes a larger number of projects, groups or divisions. Key strategies to consider as you grow your Construction Readiness implementation include:

- Developing a growth-phase communications plan,
- Identifying local implementation champions,
- Selecting a system to manage Construction Readiness Assessments across your entire capital program
- Building a training program for facilitators, construction managers and project stakeholders

About Valency

Valency implements construction industry best practices for successful project delivery by working directly with capital project leaders to achieve certainty and predictability. Through the guidance of our expert advisors and facilitators, and the deployment of proven tools, we set you up to manage risk across your entire capital program. Our accredited instructors offer extensive experience in the construction industry and are trained in Construction Industry Institute (CII) and Project Management Institute (PMI) practices.

Headquartered in the Waterloo, Ontario – Canada’s fastest-growing tech sector – Valency has a proven track record for delivering capital project-specific solutions. We are committed to restoring predictability to capital project processes, offering trusted services rooted in Construction Industry Institute (CII) best practices.

Valency is a CII member company, a CII Registered Provider, and an Approved Provider with the Construction Management Association of America (CMAA).



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1. “Finding Leading Indicators to Prevent Premature Starts to Construction,” Research Summary 323-1, Construction Industry Institute, 2016.
2. “Construction Readiness Assessment for Productivity Improvement,” Final Report DCC-02, Construction Industry Institute, 2018.