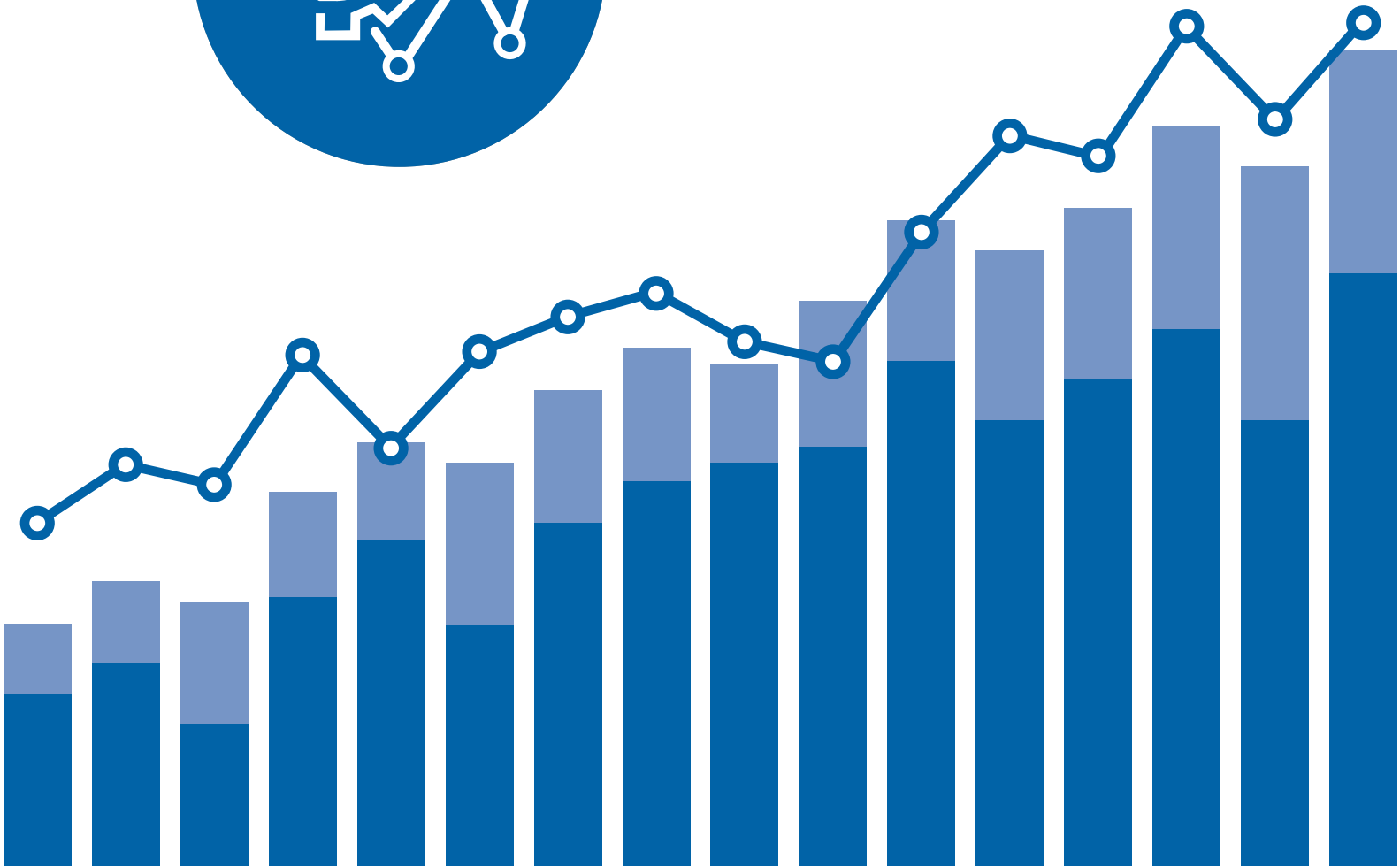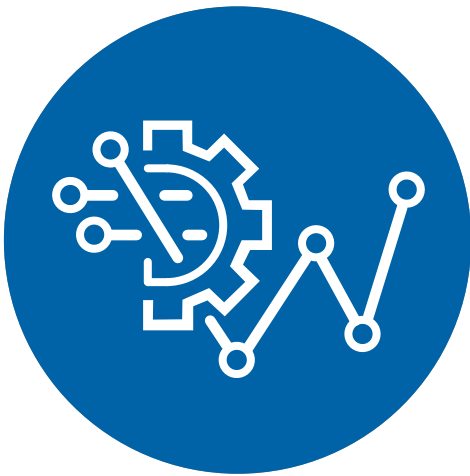# Benchmarking Associates Guide

CII Benchmarking & Metrics Desktop Guide

Implementation Resource BMM-2

Version 2.0

CII Member Companies

Owners

AdvanSix
Air Products
Albemarle Corporation
Anheuser-Busch InBev
Aramco Services Company
Archer Daniels Midland Company
Architect of the Capitol
Ascend Performance Materials
Braskem S.A.
Cargill, Inc.
Chevron
ConocoPhillips
Consolidated Edison Company of New York
Corning Inc.
Covestro LLC
CSL Behring
DTE Energy
DuPont
Eastman Chemical Company
Entergy Corporation
ExxonMobil Corporation
GlaxoSmithKline
Honeywell International Inc.
INEOS Group Holdings S. A.
Irving Oil Limited
Johnson & Johnson
KAFD
Koch Industries, Inc.
Los Alamos National Laboratory
LyondellBasell
Ma'aden-Saudi Arabia Mining Co.
Marathon Petroleum Corporation
Naval Facilities Engineering Command
New York Power Authority
NOVA Chemicals Corporation
Nuclear Decommissioning Authority
Nutrien
Occidental Petroleum Corporation
Ontario Power Generation
Petronas
Phillips 66
Public Service Electric & Gas Company
Reliance Industries Limited (RIL)
SABIC - Saudi Basic Industries Corporation
Shell
Sila Nanotechnologies Inc.
Smithsonian Institution
Southern Company
TC Energy
Tennessee Valley Authority
The Dow Chemical Company
The Procter & Gamble Company
U.S. Army Corps of Engineers
U.S. Department of Commerce/NIST
U.S. Department of Energy
U.S. Department of State
U.S. General Services Administration
Vale S.A.
Woodside Energy Limited
Zachry Corporation

Contractors

APTIM
Baker Concrete Construction Inc.
Barton Malow Company
Bechtel Group, Inc.
Black & Veatch
Blanchard Industrial, LLC
Burns & McDonnell
Chiyoda Corporation
CRB
Dematic
Exyte U.S. Inc.
Faithful+Gould
Fluor Corporation
H+M Industrial EPC
Hargrove Engineers + Constructors
Hatch
JGC Corporation
KBR
Kiewit Corporation
Larsen & Toubro Limited
MasTec Power Corporation
Matrix Service Company
McCarthy Building Companies, Inc.
McDermott International, Inc.
Middough Inc.
MODEC Inc.
Orion Plant Service, Inc.
PCL Constructors, Inc.
PLH Group
POWER Engineers, Inc.
Richard Industrial Group
Techint Engineering & Construction
Technip Energies
thyssenkrupp Industrial Solutions (USA), Inc.
Toyo Engineering Corporation
United Engineers & Constructors, Inc.
Victaulic
Wood
Worley
Zachry Group

Service Providers

Accenture
Alvarez & Marsal
Autodesk, Inc.
AVEVA Solutions Ltd.
AWP University
Construct-X, LLC
Dassault Systèmes SE
Datum360 Limited
Deloitte
DyCat Solutions
Global Site Solutions
Group ASI
Hilti Corporation
I.M.P.A.C.T.
iConstruct
Insight-AWP Inc.
Kahua, Inc.
Kairos Power, LLC
O3 Solutions
Oracle USA, Inc.
Pathfinder, LLC
PTAG, Inc.
SIRIS LLC
T. A. Cook Consultants Inc.
Valency Inc.
Verum Partners

Benchmarking Associates Guide

CII Benchmarking & Metrics Desktop Guide

Construction Industry Institute

Data Analytics Community for Business Advancement

Implementation Resource BMM-2

Version 2.0

January 2023

Executive Summary

Since CII first developed its Benchmarking Program in the 1990s, the emergence of big data has increased the quantity of data being produced at staggering rates. Likewise, tools for high-performance computing, business intelligence, and data science techniques have grown alongside big data.

These advances have massively increased the depth and breadth of analysis and comparisons possible to the practitioner. Indeed, to remain competitive, it has become essential to continuously track performance outcomes and measure them against the toughest competitors and industry leaders.

The CII Data Warehouse provides a statistically valid, credible benchmarking resource. This Benchmarking Associates Guide is intended to be a high-level description of the benchmarking process and its application at CII. Most importantly, this is a "how to guide" for new or existing Benchmarking Associates. Refer to the CII website for more details on the Data Warehouse:

https://www.construction-institute.org/dw

Contents

Note: The terms "Benchmarking & Metrics," "Performance Assessment," and "Data Analytics" are used throughout this document. To clarify the meanings of these terms:

- ***Performance Assessment** is the overall* program *that Benchmarking falls under. On the CII website, Performance Assessment is both a "Knowledge Area" and a key menu item under "Resources."*

- ***Benchmarking and Metrics** is one of the* CII Best Practices*. Its section of the CII Knowledge Base includes implementation resources (tools like this publication) to help you perform your performance assessments.*

- ***Data Analytics** is one of many CII Communities for Business Advancement (CBA), which are described under "Groups" on the CII website. As is noted later in this document, becoming an engaged member of the Data Analytics CBA is, in fact, a key step toward success in the "10-step process."*

Chapter 1:

CII Benchmarking Overview

Definition

Benchmarking is the systematic process of measuring an organization's performance against both its own internal project portfolio and industry peers for the purpose of determining best practices that, when adapted and utilized, lead to superior performance by improving capital efficiency through the total lifecycle of a project, including operations and maintenance.

Vision and Value

CII is significantly advancing the future of capital facility benchmarking and analytics in the industry by offering **the CII Data Warehouse platform**.
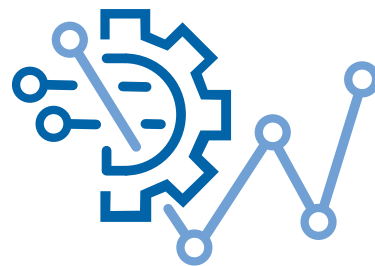
Present System

- Built for the next generation of data analytics tools

- Project controls and efficiency

- Sector-specific owner metrics

- Engineering and construction metrics

- Practices and predictability metrics

- Scalable, resilient, robust, and secure

- Leverages more than 25 years of benchmarking data and experience

Future System

- Supercomputing capability, unavailable anywhere else

- Big, robust project data: expanding in breadth, depth, and diversity with new data visualizations

- Adaptive and predictive, real-time analytics

- Platform for research and data repository for CII

In 2021, CII relaunched its benchmarking platform, rebuilt and reimagined as the Data Warehouse and hosted at the Texas Advanced Computing Center (TACC) CII's benchmarking program is a world-class system that all CII members can utilize. It represents a "step change" that significantly benefits all CII members. Through its Data Warehouse, CII will forge the future of performance assessment.

The Power of Data

Benchmarking not only provides a means for organizations to understand how they perform internally. Just as importantly, with the CII Performance Assessment program, organizations can assess how they perform compared to their competitors. This perspective, in turn, allows them to evaluate which best practices can lead to competitive advantage.

For your organization, these advancements could be immeasurable, but at the same time measurable! To clarify, using this platform could bring significant results to your organization in both the short and long terms. Its process is measurable and repeatable: just follow the benchmarking steps outlined in this guide.

Benchmarking: A Proven CII Best Practice

CII certified the benchmarking process as a CII Best Practice in April 2004. The following criteria define a CII Best Practice:

- The practice has a defined process and method with steps and activities.
- Comprehensive research has proven the value of the practice.
- The industry has accepted and is using the practice.

Essential Elements

The CII Performance Assessment Program measures project performance and CII Best Practices use for small and large capital projects, and for small maintenance projects. Projects that are input into CII's Data Warehouse system are calculated and assessed. Once an organization's project is entered into the DW, its performance can be immediately compared to similar projects in the industry.

The Data Warehouse is a world-class benchmarking and research platform that includes the following features:

- Project assessment and comparisons on a variety of metrics such as cost, schedule, safety, changes, rework
- Customized Industry specific benchmarking enabling more focused performance assessment
- Ability to assess a project's performance, team dynamics, and organizational relationships during execution to identify real time improvement opportunities via the 10-10 Program

The DW provides both quantitative and qualitative data for an inclusive deep dive into how project data can directly affect project performance across the enterprise.

What Gets Measured Gets Improved

From Best Practices to project controls, quality, productivity measures and estimate validation, CII has developed benchmarks that deliver value. Check out the **CII Knowledge Base** online to obtain clear confirmation of the value of benchmarking and its wide industry acceptance:

http://go.cii.today/kb

Other Essential Elements of the Program

1. The CII Performance Assessment Program is process-based – structured and systematic.

2. It is oriented around CII Best Practice. These validated practices have been developed through a robust research process over the last nearly 40 years and have been proven across multiple industries.

3. The Performance Assessment Program is part of a continuous improvement process.

4. It provides users the tools to measure, compare, and perform gap analysis against industry peers.

5. CII offers users support with benchmarking efforts and trends through engagement with the Data Analytics Community for Business Advancement (DA CBA).

Chapter 2:

The Benchmarking Associate:
Role, Responsibilities, and Interfaces

The Benchmarking Associate (BA) plays a pivotal role in the success of your organization's Benchmarking and Metrics program. This person's participation in the Data Analytics Community for Business Advancement (DA CBA) will provide additional training and resources for maximum benefit. This chapter outlines the role, responsibilities, and key interfaces of the BA.

Role and Responsibilities of the BA

For the BA to provide maximum benefits to your organization, it is key that the individual selected within your organization has the requisite skills to be best suited for this role. The BA also needs to be able to dedicate sufficient time to do the role justice.

The Benchmarking Associate performs the following tasks:

1. Acts as point of contact between the organization and CII for all Benchmarking Initiatives.

2. Serves as the organization's trained knowledge resource.

3. Facilitates data collection.

4. Validates project data and facilitates its submittal to CII DW.

5. Acts as a key contact with the organization's Implementation Champion (IC). The BA ensures that project issues identified through benchmarking are clearly communicated to the IC, so these issues can be addressed by deploying Best Practices. Conversely, the results of Implementation efforts can be measured by benchmarking to ensure that they are proven to be effective, as well as to check that they have addressed the issues originally discovered through benchmarking.

6. Works closely with project managers (PMs) during the process of collecting, inputting, and validating data.

Key Interfaces of the BA

Your organization's IC, BA, and PMs form what the Deployment Committee refers to as your **Implementation Network**. The BA should meet with the IC and PMs to discuss strategies and tactics at the following key intersection points on the Implementation Pyramid (shown in Figure 1):

1. **Self-audit** – Establish a baseline to determine which Best Practices (BPs) are being used throughout the organization and how effectively they are being implemented. Also determine the most critical next steps on your benchmarking and implementation journey. Some call this "identifying pain points" or "asking what keeps you up at night."

2. **Implementation Plans and Goals** – "You can only improve what can be measured" is a statement that accurately identifies the importance of the BA, IC, and PMs working closely together. Each participant in the Implementation Network has specific skills and knowledge, and the strategic organization goals of these roles support one another.

3. **Practice Implementation** – Ideally, the IC would recommend specific Best Practices and tools to the organization. This determination should be based on the analytics carried out by the project groups within your organization, as monitored by and with input from the BA as part of this person's duties (identified on the previous page).

4. **Measure Results** – The cycle of continuous improvement continues by measuring the results of your ongoing application of CII BP tools throughout your implementation program. For example, once you have used a CII tool or a combination of tools to address a weakness in Front End Planning and have then measured positive results, you can then continue to measure other areas of concern identified during implementation.

Figure 1. Implementation Pyramid

The Implementation Pyramid was developed by the CII group now known as the Deployment Committee. ICs have used this visualization for many years to ensure that Best Practices are implemented correctly. Applying these concepts to your Performance Assessment program and ensuring your BA, IC, and PMs work closely together at the key intersection points should offer your efforts a higher success rate and more expedient and effective results.

The Deployment Committee delivers on the promise of CII research in three ways:

1. Promoting the implementation of CII practices within member organizations by ensuring the suitability of CII products.

2. Offering events and online content to share key concepts explored by CII, developed to improve all areas of CII member companies, and uniquely suited to capital project delivery.

3. Measuring member companies' performance to help them maximize the return on their investment in the Institute and optimize their business operations.

Chapter 3:

The 10-Step Benchmarking Process

Starting Your Journey and Gaining ROI

CII built the Integration Toolkit to bring your data into the Data Warehouse (DW). Benchmarking leaders, and especially your BA, will use this guide to facilitate their implementation of the benchmarking process in the organization. The Integration Toolkit can be used as a stand-alone data input tool, or it can be utilized as the foundation for mapping your data to the DW import function, to support more rapid and higher volume of data for your analytics efforts. The Integration Toolkit will be discussed in greater detail in the next chapter.

Within the Benchmarking & Metrics Best Practice on CII's Knowledge Base website, the online user can access an assortment of documents and other resources that detail the successful implementation of a benchmarking process, within both owner and contractor organizations: **http://go.cii.today/bmm**

The benchmarking process includes the following 10 steps (and additional recommendations follow). As is the case with any new initiative, the process begins with achieving corporate buy-in:

1. Obtain organizational commitment to benchmark as a basis for improvement.

Benchmarking success takes a commitment of your project staff's time. It is essential that your executive leadership understands and commits to a plan in line with enterprise strategies and goals.

The success of a benchmarking and metrics initiative is always linked to the success of the follow-up program that implements the results of the findings from the measurement exercise. In other words, a doctor's prescription would be pointless if the patient did not intend to purchase the medication and commit to using it. Identification and proper use of CII tools to address the measured findings could be compared to the correct diagnosis and use of a prescription.

The benchmarking process needs to be geared towards moving the corporation towards a "best in class" status in selected metrics. Experience may be a great teacher, but benchmarking allows your organization to benefit from the experience of others who are considered to be the best while preventing your organization from paying the high price of firsthand experience.

2. **Identify the Benchmarking Associate – the person responsible for benchmarking coordination.**

The Benchmarking Associate is key to the success of your benchmarking operation and acts as the point of contact between CII and various contacts within your organization (as the previous chapter showed). The Data Warehouse gives the BA several aids for making the case to upper management and project management, enabling the BA to support both functions. Return to the previous chapter and review the key roles, responsibilities, and interfaces that make a BA effective.

3. **Attend CII's Data Warehouse Training.**

Training is a mandatory prerequisite to gaining access to the Data Warehouse portal. The initial training lasts 60 to 90 minutes and covers the following learning objectives:

- How to use data to improve projects
- How to submit data
- Which kinds of projects appear in the DW
- How the data are normalized
- How to assess project performance
- Which metrics are available in the DW
- How data remains confidential
- How to customize the metrics

If your organization subscribes to CII Online Education, consider using its modules as an alternative to live training: **http://go.cii.today/ole**

4. **Identify Project Managers for benchmarking and improvement.**

Project Managers (PMs) are key to a successful benchmarking program because they have the best access to project information. It is their responsibility to obtain accurate and complete data for the Integration Toolkit, regardless of whether the project submittal method is manual or mapped to the CII Data Warehouse API. The Integration Toolkit is intuitive and easy to use.

As with any benchmarking platform, the outputs from the DW are only as good as the data you put in. It is therefore crucial to verify the accuracy of the data. Questionnaire validation is the responsibility of both the PM and the BA, with assistance from CII staff.

Project Managers perform the following tasks:

- Obtain and validate data
- Work with the Benchmarking Associate in the implementation of the company's continuous improvement program
- Utilize CII Best Practices as recommended by the Implementation Champion and Benchmarking Associate.

5. Determine Levels of Use – How much and what do you want to benchmark?

Does your company understand what it needs to improve? If you are unsure, then CII recommends that you begin with a generalized approach to benchmarking. Study all performance measures carefully and identify which practices are already in place at the organization. This survey will establish a baseline. Then, using the DW data mining tool, learn which practices to target for improvement.

Which projects should you choose to benchmark?

Fundamentally, an organization must answer to two questions: "What will be compared?" and "Who will we compare against?" The answers to these questions will be unique to each organization. Due to the unique characteristics of the DW, organizations can benchmark according to a variety of business-specific objectives.

What will be compared?

Performance benchmarking compares performance to evaluate and determine the gap with other organizations. **Process benchmarking** compare the practices and methods to learn from the "best in class."

Who will we be compared against?

Internal benchmarking compares performance or processes among departments, groups, or units within one organization. **Competitive benchmarking** compares performance or processes against other similar projects.

Selecting the correct projects to benchmark is a critical part of the process. Follow these guidelines when selecting projects:

- Avoid choosing only the best performing projects. Remember, you are looking for continuous improvement, so you need an assortment of projects to provide realistic results.

- Don't choose projects that are not typically performed by the organization.

- Do choose projects that are representative of your organization to provide a realistic benchmark of the company.

- Eliminate projects with incomplete or unreliable data.

- Communicate clearly to your PMs the purpose of benchmarking and emphasize that in no way is this a punitive exercise.

6. Input project data during execution.

To achieve the greatest impact, continuously monitor and evaluate project performance. Project data can be submitted to the DW via a few methods, including submitting data over time or submitting after project closeout. Both the small and large project questionnaires are divided into several sections, which allows data input over the course of the project. Submitting your project data for analysis is easy. The Integration Toolkit provides an easy-to-use Excel-based input form.

Small project practices mirror the CII Knowledge Structure:

- Automation/integration technology
- Construction
- Controls
- Design
- Front end planning
- Organization
- Processes
- Procurement
- Safety, health, and environment
- Startup planning and commissioning

Large project practices include the following:

- Alignment during front end planning
- Change management
- Constructability
- Front end project planning
- Materials management
- Planning for startup
- Quality management
- Team building
- Zero accidents techniques

Other questionnaires are available for different benchmarking purposes. Industry-specific questionnaires are available for manufacturing to support estimate validation. CII's 10-10 program allows your organization to capture both valuable quantitative and qualitative data (e.g., human factors) for your project portfolio.

Getting started is simple. After attending CII's Benchmarking Associates Training, simply log in to the CII website and click to go to the Data Warehouse: **https://portal.construction-institute.org/**

7. Finalize and submit project questionnaire by phase or at project close out.

Once a project phase is complete, or at project close-out, the PM should complete the project questionnaire and the BA should review the data online to ensure accuracy and completion. If the project data meet these criteria, then the BA should submit the project within the DW. Once submitted, the project goes into a validation and review process with CII. The data will only be accepted into the DW for analysis and final reporting after it has been validated by your BA and CII.

8. Generate project and/or enterprise reports.

Once you have submitted all data from just one project, you will receive a Performance Assessment Key Report. This report will provide an analysis of how your project has performed against hundreds of similar projects in the industry for the metrics you entered. Additionally, the Data Miner allows the user to browse project performance across industries, project types, cost categories, practices, and more.

As you continue your journey and submit other projects, you will be on your way to benchmarking and project excellence. You will be able to benchmark both internally across your enterprise, and against the best in the industry.

9. Repeat steps 5-8 as part of your continuous improvement program.

Successful projects and best-in-class company performance are no accident. They happen because the project staff within them understood and committed to the effort it takes to become successful, even excellent.

10. Engage with the Data Analytics Community for Business Advancement.

The vision of the DA CBA is "enhanced project delivery through performance assessment, benchmarking, metrics, and data analytics." The community provides awareness, support, and training and is a space for participants to share lessons learned and success stories.

The goal of the DA CBA is to leverage principles of data science, metrics, and analytics to discover new relationships. These findings can guide the development of practices and tools that lead to improved business outcomes for capital facilities project delivery. Perhaps in the future they can expand to include the maintenance, shutdown, turnaround, and operational aspects of the capital asset.

Additional recommendations

1. Perform self-analysis of performance and practice use and compare with industry.

2. Use the Data Warehouse Integration Toolkit and other DA CBA training resources.

3. Develop and implement an improvement plan using CII Best Practices and tools in conjunction with project benchmarking.

Chapter 4:

Data Warehouse Lab and Case Studies

CII's partnership with the Texas Advanced Computing Center (TACC) is a "step change" that has led to new breakthroughs in benchmarking via predictive analytic models. This relationship will continue to benefit CII members as the platform services move into the future of true real-time performance assessment.

CII's Data Warehouse provides a one-of-a-kind opportunity for your organization to achieve greatness in your business. The DW offers the following features:

- World-class academic supercomputing
- Science as a service, advanced modeling, machine learning, and visualization
- Secure, non-biased, and university-based metrics
- Multiple perspectives of performance
- An evaluation of the impact of CII Best Practices
- Confidentiality: see the summary of CII confidentiality in the appendix.
- Functional benchmarking: compare a particular business function against two or more companies in the same industry.
- Generic benchmarking: compare against the best organizations, regardless of industry.

Integration Toolkit

The Integration Toolkit provides a roadmap to achieve increasing levels of automated data extraction from internal systems for seamless imports into the DW.

Getting Started – Input One Project into the Integration Toolkit

The first time around, just input your project data into the Integration Toolkit. The best time to do so is shortly after Benchmarking Associates training. Send the project into CII and obtain your Performance Assessment Key Report. ***It is as easy as that.***

Member Case Study #1 – Quick Assessment

Shortly after the Data Warehouse was launched, a member company wanted to evaluate how its projects compared with others in the DW. Company employees reached out to CII. Because this member was new to CII, the company was in the process of evaluating different CII practices and wished to get a CII Performance Assessment Key Report for a recent project in order to see the results as quickly as possible.

After training, the BA filled in the Integration Toolkit with the project details and submitted the results to CII. After spending just a few hours of effort to attend training and gather project data, the member's BA could see an assessment of how the submitted project performed for a variety of metrics, including cost and schedule performance.

Member Case Study #2 – A Comprehensive Review Across a Portfolio

Another member company, which had been active with CII Performance Assessment in the past, decided to start benchmarking again utilizing the then-new Data Warehouse. The company also utilized the Integration Toolkit to input its first project for the DW, but its employees took this a step further:

- As they filled out the project in the Integration Toolkit, they documented the location of the data from their internal project controls and construction management systems.

- Next, they developed reports that extracted the data into the DW format.

- Once completed, this report can be run for any project executed by the organization, now and in the future.

- Furthermore, because this organization had an extensive portfolio of projects from both the past and going forward, CII could set up an internal benchmarking lab for this member. This is one of the amazingly scalable features of the DW. Each member can have its own internal benchmarking system, with its own auto-generated Data Miner.

Utilize the Integration Toolkit to Map to Your Organization's Systems: Map, Extract, Automate

Of course, it wouldn't be a high-performance Data Warehouse if an Excel template were the only way to collect data. In fact, the Integration Toolkit provides a data definition for your organization to map. Table 1 shows the elements of the Integration Toolkit. Contact CII when your organization is ready to develop data extracts for more automated data transmittal.

Project Data Questionnaire Sections

Table 2 lists the major sections of the large project questionnaire for reference. A variety of questionnaires exist and information about them is available through the Data Analytics CBA. Check that CBA's webpage on the CII website for more detailed information.

Even if you submit only the minimum, mandatory data requirements, you enable the system to create a Performance Key Report that will show metrics scores for basic project controls, such as cost growth and schedule growth. The system creates these scores by comparing your results to the results for other similar projects in the database.

Table 1. The Integration Toolkit Process

Section Name	Subject	Instructions
MAP	**Step 1: Input One Project into Excel Template**	Fill in a project using the Data Warehouse Integration Toolkit. Keep track of where you found the data for each section. Export the data by clicking on the export button.
	Step 2: Validate and Review Results	Your CII benchmarking contact will work with you to validate the data and ensure that it matches CII definitions. Once that is complete, this project will be imported into the DW.
	Step 3: Develop Automation Plan	Use exported data and the data dictionary as a road map to align CII data with your own internal data sources and applications.
EXTRACT	**Step 1: Export Data from Your System**	Using the mapping results from Round 1, develop a data extract from your organization's system where project data are collected.
	Step 2: Validate and Revise as Necessary	Your CII benchmarking contact will import your data into the DW and provide feedback about any required changes.
	Step 3: Update and Prepare for Launch	Develop a plan to launch your data extraction report for general use at your organization.
AUTOMATE	**Success!**	Extract your project data when it is ready to be input into the DW. Your CII benchmarking contact will step you through the automation process.

Table 2. Sections of the Large Project Data Questionnaire

Mandatory	Optional
1. General Information	*7. Project Acquisition Strategy*
2. Project Type	*8. Complexity and Security*
3. Project Nature	*9. Project-Specific Cost*
4. Project Delivery Method	*10. Project Cost – Impact of Change*
5. Project Cost	*11. Project Schedule – Impact of Change*
6. Project Schedule	*12. Project Impact Factors*
	13. Project Performance Metrics
	14. Best Practices

Benchmarking Comparisons

In benchmarking, it is not only important to know one's performance, but to be sure that performance comparisons are appropriate. For example, an Oil Sands SAGD project classified as a Heavy Industrial project with a cost category of > $500 million USD was observed to have a cost growth score of .27, indicating that it experienced 27% cost growth from the original budget. Other similar projects in that class had an average cost growth of 36%, meaning that this project's cost growth is in the second quartile for performance. The left side of Figure 3 shows its results in the DW. Not great, perhaps, but not uncommon. Mega projects often experience extreme cost growth.

Num projects = 108

Selection	Value
Industry Group	Heavy Industrial
Cost Category	> 500 mil

Num projects = 88

Selection	Value
Industry Group	Light Industrial
Cost Category	100 mil - 500 mil

Figure 3. Oil Sands SAGD Project *(left)* vs. Light Industrial Project *(right)*

By contrast, typical cost growth for other project types is quite different. As the right side of Figure 3 shows, if a light industrial project in the $100-$500 million range experienced 27% cost growth, it would be considered an outlier, beyond the fourth quartile.

This example demonstrates that the basis of comparison is important. CII has developed the "drill down algorithm" for its project performance Key Report over the last two decades, utilizing a rigorous research process. You can trust CII to provide the best comparisons available.

All the best on your benchmarking journey to success!

Appendix:

Confidentiality and the Benchmarking Code of Conduct

CII Confidentiality Policy Highlights

1. Company data are considered confidential.

2. Data can be used to support CII benchmarking, research, and related academic activities only if the confidentiality of companies submitting the data is protected.

3. Access to data is limited to CII staff and authorized researchers only.

4. All persons with access to CII data must sign confidentiality agreements and abide by CII confidentiality policies.

5. When data are provided in support of research activities, all confidential identifiers will be removed and only essential subsets of data will be provided.

6. All data published and/or presented must reflect the aggregate of at least 10 projects from three separate companies.

7. Reports and data files containing only individual project or company data are considered confidential will not be published or provided to researchers.

8. In cases where a disproportionate amount of data is provided by a single company, CII will suppress publication of results until the data set is sufficiently large to mitigate confidentiality or bias concerns.

CII Benchmarking Code of Conduct

Organizations participating in the CII Performance Assessment Program are expected to adhere to the following principles:
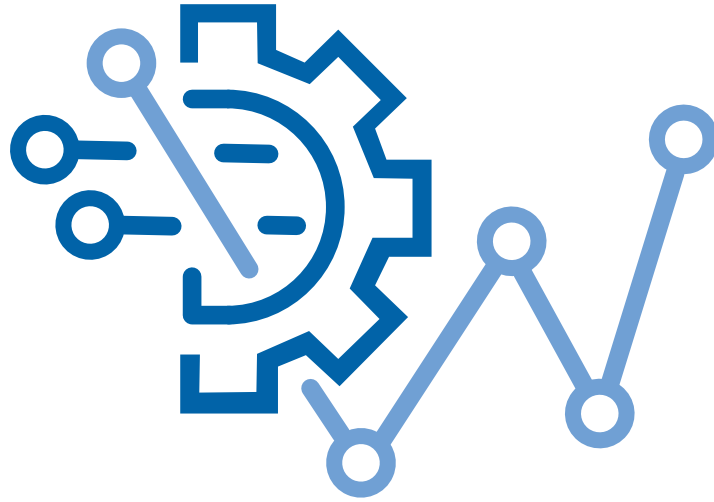
1. Discussions or actions that might lead to or imply an interest in restraint of trade, market customer allocation schemes, dealing arrangements, bid rigging, bribery, or misappropriation will be avoided.

2. A competitor or potential competitor will not be contacted to obtain price or sales-related data.

3. Since members gain by sharing data (with due respect to confidentiality concerns), participants agree to input complete and accurate data on a representative sample of projects, and may expect access to similar data from member organizations after aggregation of the information to protect participant confidentiality.

4. No effort will be made to seek confidential information on other organizations through CII staff or Committee members.

5. Commitment to the efficiency, effectiveness, and accuracy of the benchmarking process will be demonstrated through annual attendance at Benchmarking Associate training and through thorough review/validation of data prior to submission to CII. Participants will also commit to providing questionnaires that are as complete as possible.

Data Analytics Community for Business Advancement

Abdirahman Abdi, Aramco Services Company

Turki Al-Sulami, SABIC - Saudi Basic Industries Corporation

Bjorn Andersen, Norwegian University of Science & Technology

Andrew Armpriester, Chevron

Mayank Arora, PTAG, Inc.

Adam Bernfeld, DuPont

Patrice Bisogni, The Procter & Gamble Company

Tammy Brennan, Pathfinder, LLC

Hal Brothers, Koch Industries, Inc.

Martyn Brown, GlaxoSmithKline

Wesley Brubaker, Chevron

Amanda Cantley, Southern Company

Kenda Caskey, Burns & McDonnell

Jay Choi, Central Connecticut State Univ

Eric Crivella, WorkPacks

* Michael G Davidson, PTAG, Inc.

* Deborah DeGezelle, CII

Chris Deidun, PTAG, Inc.

Anand Desai, Accenture

Mike Dubreuil, PTAG, Inc.

Patrick Dubreuil, PTAG, Inc.

Michael Ford, Corning Inc.

Josh Girvin, O3 Solutions

Darrick Godfrey, U.S. Army Corps of Engineers

Stuart Innes, Flint Hills Resources, LP

Katy Johansson, ExxonMobil Corporation

Angela Johnson, DTE Energy

Jeff Kessler, POWER Engineers, Inc.

Brian Kong, U.S. Department of Energy

Dee Kurth, ONEOK, Inc.

Lisa Kyriienko, U.S. Department of State

Wei Lan, GlaxoSmithKline

Jan Langlo, Norwegian University of Science & Technology

Shawn Lee, ConocoPhillips

Bruce Long, Southern Company

Jetty Ly, PTAG, Inc.

Kshitij Maheshwari, PTAG, Inc.

Anabella Martin, Hilti Corporation

Todd McKimmey, ONEOK, Inc.

Chuck Mies, Autodesk, Inc.

Mark Munion, T. A. Cook Consultants Inc

Jane Newman-Ford, Burns & McDonnell

Lateef Olayiwola, PTAG, Inc.

Reza Ozmai, Hilti Corporation

Marzieh Pakdel, PTAG, Inc.

Iain Paterson, GlaxoSmithKline

Erica Pietroniro, Valency Inc.

Jeremy Rasmussen, PTAG, Inc.

Robert Ries, University of Florida

Amy Sager, Kiewit Energy Group

Sara Sander, Burns & McDonnell

Stephen Seiler, Chevron

Shilpa Sharma, Trillium Advisory Group Ltd

Vivek Sharma, Clemson University

Dan Shovlin, Faithful+Gould

Sumit Singal, Huntsman Corporation

Sung Joon Suk, Western Carolina University

Todd Sutton, Zachry Corporation

Todd Svihovec, Flint Hills Resources, LP

John Talkington, Smithsonian Institution

Joe Tatoris, Johnson & Johnson

Steve Townsend, GlaxoSmithKline

Bill Troxell, Air Products

Collin Tsui, Fluor Corporation

Judy Veatch, Black & Veatch

Hector Vega, ExxonMobil Corporation

Fabian von Eichel-Streiber, Flint Hills Resources,

Eric Vyskocil, Ontario Power Generation

Michael Wang, Ontario Power Generation

Steve Willcock, Faithful+Gould

Dan Williams, GlaxoSmithKline

Matthew Wolfram, Deloitte

Toby Wong, Trillium Advisory Group Ltd

Yin Zhe, CII

Zhenhua Zhu, University of Wisconsin-Madison

* Principal authors

Editor: Michael E. Burns

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