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Designing and Piloting an Internal 'University' for a Data-Center GC: A Three-Legged Framework for Standardized Training

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Rapid growth in U.S. data-center construction is forcing specialized general contractors to onboard geographically dispersed teams under tight schedules. Many firms still rely on informal mentoring, creating variation in documentation, digital workflow execution, and communication norms as experienced hires arrive with different playbooks. This design-based, single-firm case study documents how an industry-academic team implemented an internal corporate university to standardize Procure-based processes and company expectations. The team conducted a training needs assessment, selected an LMS using a multi-criteria decision matrix, and developed 40 microlearning modules organized into three components: construction management foundations, Procure workflow execution, and “The Company Way.” The program was piloted on two project teams using six core modules (Submittals, Job Cost Control, Scheduling Basics, Pay Applications, RFIs, and Leadership Fundamentals). Pilot indicators from LMS analytics (completion, time-on-task, quiz performance) and coded supervisor logs suggest clearer expectations for task completion and more consistent workflow execution, while longitudinal outcomes remain in progress. The paper contributes a transferable framework, an LMS selection approach, and a practical mixed-method evaluation design for contractors scaling onboarding during rapid growth.

Keywords: Construction training; workforce development; corporate university; learning management system; data centers

Introduction

Data-center construction has increased rapidly, driven by cloud expansion, AI infrastructure, and continued growth in digital storage. For contractors, this translates into aggressive schedules, strict commissioning expectations, and project teams spread across multiple regions and time zones (CBRE, 2025). In that environment, small differences in how teams manage submittals, RFIs, pay applications, and cost/schedule updates lead to real friction, such as missed handoffs, inconsistent logs, and avoidable rework.

At the same time, most contractors continue to face staffing gaps and higher turnover, and many are relying more on internal training to address skill and consistency gaps (Associated General Contractors of America [AGC], 2024). In a fast-growing data center contractor, the challenge is not

just hiring enough people. It involves integrating a mixed workforce of new and experienced hires from different companies to execute the same processes in the same way within the same digital system, while maintaining a consistent leadership and communication style.

This paper describes how one privately held data-center GC responded by building and piloting an internal training program (“The Company University”) with academic support. The company already had playbooks, templates, and experienced leaders, but execution still varied by region and by who trained whom. Onboarding depended heavily on informal mentoring and “shadowing,” which created uneven ramp-up and inconsistent expectations for documentation quality, workflow sequencing, and escalation. Because the company relies on Procore for most project administration, the solution had to standardize how work is executed in the tool rather than create training that sits outside day-to-day operations.

The result was an internal “university” structured around three linked components: construction-management foundations (the “why” behind the work), Procore-based workflow execution (the “how” in the CMIS), and company-specific operating expectations (“The Company Way”). The paper focuses on what was implemented and how: a structured needs assessment, a selection process for the learning platform, development of microlearning modules, and a pilot rollout on two active project teams. The intent is to provide a practical template that other contractors can adapt when scaling teams quickly, without relying on tribal knowledge to carry the standard.

The study addresses three research questions: (RQ1) How can a three-legged framework—integrating academic foundations, CMIS/Procore workflows, and company practices—be integrated into a role-based training curriculum? (RQ2) During early rollout, what adoption and behavioral indicators are observable in documentation and communication practices? (RQ3) What evaluation mechanisms are practical for monitoring process consistency and cultural alignment at scale?

Literature Background and Research Gap

Workforce constraints remain a persistent challenge in construction. National industry surveys report that a large majority of firms have difficulty finding qualified workers and are responding by increasing compensation and investing in upskilling, including initiating or increasing spending on training and professional development (AGC, 2024). These constraints are amplified in fast-growth segments such as hyperscale data-center delivery, where project cycles are compressed and teams are distributed across regions.

A common organizational response in other sectors is the creation of a ‘corporate university,’ defined as a centralized, strategic umbrella for employee education that explicitly supports business strategy and culture (Meister, 1998). Corporate university research emphasizes that internal academies are most effective when they integrate competency development with knowledge management and culture-building rather than operating as disconnected course catalogs (Walton & Martin, 2004). However, construction research more frequently examines training topics (e.g., safety or technology) than the end-to-end design of an internal academy that simultaneously targets workflow standardization (how work is executed in the CMIS) and cultural alignment (how teams communicate and lead).

Training evaluation is another gap. Construction training studies often emphasize reaction (satisfaction) and short-term learning while under-measuring behavior change and organizational results. Jadallah et al. (2021) synthesize construction training assessment literature and propose a framework rooted in Kirkpatrick’s four levels, reaction, learning, behavior, and results (Kirkpatrick &

Kirkpatrick, 2016), highlighting the need for more structured, multi-level evaluation methods in industry settings.

Accordingly, this study contributes (1) a three-legged instructional framework that integrates academic foundations, Procore-based workflow execution, and company-specific practices; (2) a replicable, multi-criteria LMS selection approach tailored to AEC training; and (3) an evaluation design that combines LMS analytics with qualitative observation and survey data to support behavior-level insights during scale-up.

Methodology

Research design

This work is documented as a design-based, single-firm case study. The training program was co-developed with the contractor in an active delivery environment, refined through pilot rollout feedback, and evaluated using evidence the company could realistically collect during operations. The intent is to document what was implemented, why key decisions were made, and what early leading indicators were observed.

Case context

The case organization ("The Company") is a privately held GC specializing in hyperscale data-center delivery. Rapid multi-region growth increased variation in documentation quality, Procore workflow execution, and leadership communication across project teams. The practical problem was not a lack of tools or playbooks; it was inconsistent execution and inconsistent onboarding due to locally adapted practices and informal mentoring.

Data sources and collection

Data were collected across four implementation phases: (A) training needs assessment, (B) LMS selection, (C) module development, and (D) pilot implementation. Evidence sources included: internal document artifacts (playbooks, SOPs, RACI matrices, templates, and workflow checklists); semi-structured interviews with leadership and operational staff; focus groups with project team members; LMS analytics from Pinnacle Series (Eagle Point Software, n.d.), including enrollment, completion, time-on-task, and quiz scores; and structured supervisor observation logs with post-module group debriefs during the pilot.

Sampling and participants

Participants were selected purposively to capture perspectives across leadership, project management, and field supervision roles directly involved in data-center delivery and onboarding. Data collection included semi-structured interviews (n = 12), focus groups (k = 3; total participants n = 18), and internal document artifacts reviewed (m = 22), including playbooks, SOPs, templates, RACI matrices, and workflow checklists. The pilot implementation occurred on two active project teams (Team A and Team B) located in different U.S. regions; these teams were selected purposively to represent two regional operating contexts and because project leadership agreed to allocate time for module completion and structured feedback during the pilot window. The pilot cohort included 24 participants (Team A n = 11; Team B n = 13), spanning Project Engineers (n = 10), Project Managers (n = 7), and Superintendents/Field Supervisors (n = 7), with a mix of tenure (new hires and experienced transfers). Structured supervisor observation logs were contributed by the direct project-level supervisors for each pilot team (typically the Project Manager and Superintendent leads) responsible for

documentation quality and Procore workflow compliance; logs were submitted weekly using a standardized template throughout the six-module pilot and were supplemented by post-module group debriefs.

Analytic procedures

Qualitative materials (interview notes, focus-group notes, observation logs, open-ended survey responses) were analyzed using thematic coding. A codebook was developed aligned to the research questions (workflow clarity, documentation behaviors, communication norms, barriers/enablers). Two analysts coded a subset of notes to calibrate the codebook, then coded remaining data; themes were reconciled by consensus. Quantitative LMS data were analyzed descriptively for the pilot (completion rates, time-on-task, quiz performance) and will support longitudinal comparisons as Year 1 data accumulate. For this study, process consistency refers to repeatable execution of standard workflow steps and documentation expectations in Procore, and cultural alignment refers to observable communication and leadership behaviors consistent with "The Company Way," as reflected in structured supervisor observations and debriefs.

Because the study involved employee feedback related to training design and implementation, the academic partner institution's human-subjects review procedures were followed. The study was reviewed and determined to be Exempt under Institutional Review Board protocol as the activities constituted program evaluation involving non-identifiable information collected in a workplace training context.

Participation in interviews, focus groups, surveys, and pilot activities was voluntary. No sensitive personal data were collected. All interview notes, focus-group notes, LMS analytics, and supervisor observation logs were aggregated and de-identified prior to analysis. Results are reported at the group or role level to protect individual confidentiality and organizational anonymity.

Program Framework and Content Structure

The Company University was structured around three elements to standardize both workflow execution and day-to-day expectations: (1) academic construction-management foundations, (2) Procore-based digital workflow proficiency, and (3) codified company-specific practices ("The Company Way"). This structure emerged directly from the needs assessment. We saw variability in (a) conceptual understanding (why a process matters), (b) execution inside the CMIS (where and how the task is completed in Procore), and (c) shared expectations for communication and documentation (naming conventions, escalation, accountability). The three elements were designed to address those gaps collectively, rather than as separate "theory vs. software vs. culture" training tracks.

Component 1: Academic foundations. Academic collaborators translated core construction-management concepts (e.g., scheduling logic, cost control, risk communication) into short, practice-oriented modules aligned with the firm's data-center project context. The intent was to give a consistent "why" behind the workflows so teams were not just clicking through steps.

Component 2: Procore workflow integration. Because the firm executes most project communication and documentation inside Procore, modules include workflow demonstrations, screenshots, and applied exercises using the company's templates and standard sequences. This builds on general Procore learning resources and certifications while emphasizing company-specific execution expectations (Procore Technologies, n.d.).

Component 3: The Company Way. Company values and operating norms are taught as observable behaviors (e.g., documentation discipline, proactive communication, leadership accountability) and embedded consistently across modules so expectations are the same across regions and supervisors.

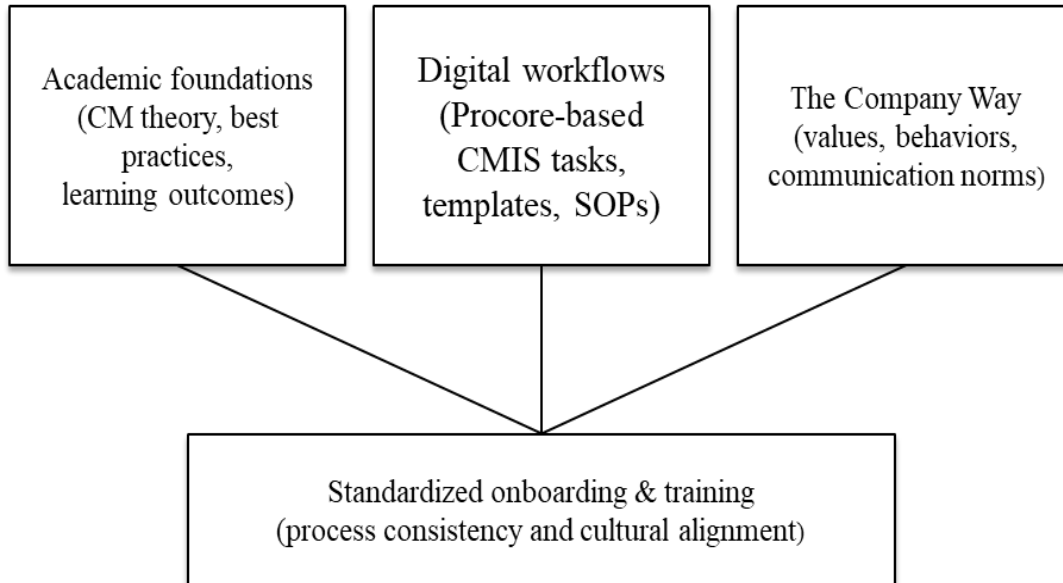


Figure 1. The three-legged framework used to structure The Company University curriculum.

Results

Needs Assessment Findings and Design Requirements

The needs assessment combined internal document review, interviews, and focus groups to identify where execution was breaking down during rapid growth. The takeaway was straightforward: the company had playbooks, templates, and experienced people, but day-to-day interpretation and execution still varied by region and by supervisor. That variation was most evident in how teams executed core workflows, documented work, and communicated expectations.

Table 1 summarizes the six themes that drove curriculum requirements. In short, we saw inconsistent “start-to-close” workflow execution for core processes (submittals, RFIs, and pay applications), uneven documentation completeness and naming discipline, onboarding that depended heavily on informal shadowing, gaps in cost/schedule “why” even when people could execute clicks in the tool, inconsistent field–office escalation norms, and culture being treated as implicit instead of taught as behaviors.

Theme 1: Workflow variance in core PM/PE processes (submittals, RFIs, pay applications). Participants described differences in how tasks were initiated, tracked, and closed in Procore depending on prior employer habits.

Theme 2: Documentation completeness and naming conventions. Supervisors reported that missing fields, inconsistent file naming, and uneven log updates reduced transparency and created rework in downstream reporting.

Theme 3: Onboarding inconsistency and dependence on informal mentoring. New hires relied heavily on shadowing and local mentors, creating uneven exposure to standard practices and slow ramp-up in distributed teams.

Theme 4: Cost and schedule control mental models. Interviewees noted that some staff could execute a workflow mechanically but lacked a shared understanding of why timely cost forecasting or schedule updates mattered for client communication and risk management.

Theme 5: Field-office communication norms. Focus group participants highlighted inconsistent escalation, meeting cadence, and expectations regarding the documentation of decisions and constraints.

Theme 6: Cultural alignment and leadership behaviors. Leaders emphasized that culture needed to be taught as behaviors (e.g., how to communicate, document, and lead), rather than left to informal absorption.

Table 1. Needs assessment themes, observed gaps, and how each theme informed curriculum design.

Needs assessment theme	Observed gap (examples)	Curriculum design response	Evidence source(s)
Workflow variance in core processes	Different sequences and responsibilities for RFIs, submittals, and pay applications	Role-based modules with standardized "start-to-close" workflow steps in Procore	Interviews; focus groups; document review
Documentation completeness & naming	Missing fields, inconsistent file naming, uneven log updates	Embedded checklists, naming standards, and "definition of done" in each workflow module	Supervisor observations; document review
Onboarding inconsistency	Mentor-dependent training; uneven exposure across regions	Foundations Track for onboarding + required core modules in first 90 days	Interviews; focus groups
Cost & schedule mental models	Mechanical execution without shared rationale/impacts	Academic "why" segment at module start + scenario-based examples tied to data-center delivery	Interviews
Field-office communication norms	Inconsistent escalation and meeting/documentation expectations	The Company Way behaviors embedded; templates for updates/escalations	Focus groups; interviews
Culture & leadership behaviors	Culture is treated as implicit; inconsistent leadership coaching	Leadership modules + supervisor reinforcement prompts	Leadership interviews; steering committee notes

Learning Management System Selection

Once the needs assessment made the problem clear, the next practical step was selecting a platform that could support a real internal academy at scale. The requirements were not complex, but they were non-negotiable: role-based learning tracks, the ability to host and update company-specific content quickly, exportable analytics, a low administrative burden, good usability for distributed teams, and training that reinforces Procore workflows rather than creating a parallel system. The team evaluated multiple LMS options and selected Pinnacle Series (Eagle Point Software) as the delivery and analytics platform. The selection was documented using a multi-criteria decision matrix to support internal justification and to enable repetition if requirements change. Table 2 presents the criteria and the capabilities the platform needed to support.

Table 2. LMS selection criteria used to evaluate options and document the rationale for selecting Pinnacle Series.

Criterion	Why it mattered for this case	Selection requirement (decision rationale)
Role-based learning tracks & automated assignment	Needed consistent onboarding and progression across regions/roles	Assign tracks on hire; dashboards for supervisors
Internal content authoring / knowledge capture	Needed to codify company templates, naming, and 'The Company Way'	Support multimedia modules; rapid content updates
Assessment & analytics (exportable)	Needed evidence beyond satisfaction; track learning + adoption indicators	Exportable completion, time-on-task, and quiz analytics
Ease of administration and support	Small training team; rapid rollout	Simple administration workflow; vendor support
Accessibility (mobile / distributed workforce)	Users across jobsites and offices	Browser-based access suitable for distributed teams
Integration considerations	Needed training aligned to Procore workflows, not replacement	Links to Procore artifacts without disrupting CMIS execution

Pilot Implementation and Leading Indicators

Pilot scope. The program was piloted on two project teams in different U.S. regions. Participants completed six core modules: Submittals, Job Cost Control, Scheduling Basics, Pay Applications, RFIs, and Leadership Fundamentals. The goal of the pilot was not to claim project-level outcomes; it was to confirm usability, content clarity, and alignment to company procedures while collecting early leading indicators of adoption.

Quantitative leading indicators. Pinnacle dashboards were used to extract enrollment, completion, time-on-task, and quiz performance for each module. Across the six pilot modules, overall completion averaged 87%, with variation by role and module sequence. Median time-on-task per module was 18 minutes, consistent with the intended microlearning format. Mean quiz performance across modules was 84% (SD = 9%), indicating general comprehension of standardized workflows while still leaving room for targeted clarification in specific modules.

Qualitative leading indicators. Supervisors submitted structured observation logs during and after module completion, and the team conducted post-module group debriefs. Coded themes from these materials indicated a clearer "definition of done" for core workflows, improved documentation

completeness (fewer missing fields and more consistent naming), and more consistent escalation language aligned with The Company Way.

Content revisions. Pilot feedback led to targeted revisions, including clarifying terminology, reordering steps to align with the actual Procure workflow, and adding jobsite examples. The steering committee established a monthly content governance process to manage version control across forty modules.

Figure 2 summarizes the Year 1 rollout and evaluation cadence used to move from pilot testing into operational scaling while maintaining a consistent review and improvement cycle.

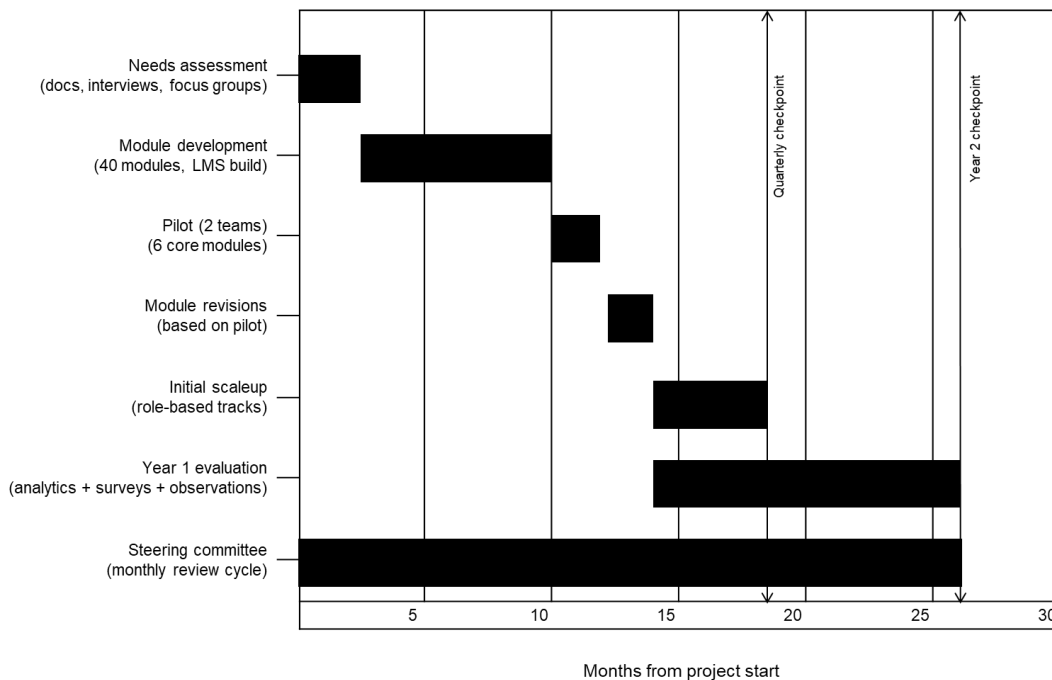


Figure 2. Year 1 rollout and evaluation cadence illustrating pilot deployment, content revision cycles, evaluation touchpoints, and governance checkpoints.

Discussion

RQ1: Integrating the three elements into a role-based curriculum. The main design decision that mattered was keeping the three elements together inside each module, instead of splitting training into separate “theory,” “software,” and “culture” tracks. In practice, workflow variation was not just a Procure navigation issue. The needs assessment showed that teams were inconsistent because people came in with different mental models of why a process matters, different habits for what “complete” documentation looks like, and different expectations for escalation and communication. Building each module with (1) the “why” (foundations), (2) the “how” in Procure (standard steps and templates), and (3) the expected behaviors (The Company Way) created a repeatable structure that supports both competence and standard execution across regions.

RQ2: Observable adoption and behavioral indicators during rollout. At this stage, the right question is not “did the company improve project outcomes,” because that takes time and more data. The right question is whether the rollout produced leading indicators that the training is being used and that behavior is moving in the right direction. LMS analytics provided a clear read on engagement and completion, and supervisor observation logs provided on-the-ground verification of whether workflow sequencing, documentation discipline, and escalation language were becoming more consistent. This pairing is important because it avoids relying on satisfaction surveys alone and supports behavior-level evidence, which is a known gap in construction training evaluation (Jadallah et al., 2021).

RQ3: Practical evaluation mechanisms at scale. The evaluation approach was designed to fit normal operations. LMS analytics provide continuous measurement of participation and learning. Quarterly pulse surveys and structured supervisor prompts provide a workable way to check whether expectations are landing consistently across regions and roles. Periodic audits of workflow artifacts (e.g., log completeness, naming compliance, and “definition of done” checks) provide operational proxies for process consistency without creating a separate measurement bureaucracy. Together, these mechanisms support both formative improvement (what to fix next in content and rollout) and longitudinal assessment (what changed over Year 1 as adoption scales).

Practical implications. For contractors growing fast, internal training works best when it is treated as an operating system, not a set of optional classes. This case suggests three practical requirements: teach workflows inside the tools the teams already use; define culture as observable behaviors that supervisors can reinforce; and build evaluation into the rollout using simple analytics and structured observation rather than relying on anecdotal feedback.

Limitations

Findings come from a single firm in one delivery segment (hyperscale data centers), so transferability to contractors with different contract models, digital stacks, or workforce profiles is limited. Pilot results are based on leading indicators (LMS analytics and structured observations) and do not yet include long-term operational outcomes, and supervisor observations may include bias. Implementation also varies by project cadence and leadership capacity, which can affect adoption even with standardized content. As Year 1 data mature, future analyses should incorporate baseline comparisons, matched teams where feasible, and additional objective measures (e.g., documentation audit scores) to strengthen inference.

Conclusion

This paper documents how a privately held data-center GC designed and piloted an internal training program (“The Company University”) to standardize onboarding, Procore-based workflow execution, and company operating expectations during rapid growth. The work focused on implementation: a structured needs assessment to identify where execution was inconsistent; an LMS selection process using a multi-criteria decision matrix; and the development of forty microlearning modules organized around three elements—construction-management foundations, Procore workflow execution, and “The Company Way.”

The pilot rollout on two active project teams produced early leading indicators consistent with improved standardization: high module completion, short time-on-task aligned with microlearning goals, solid quiz performance, and supervisor observations pointing to clearer “definition of done,”

more consistent documentation habits, and more consistent workflow sequencing. The primary contribution is a practical framework and evaluation approach that other contractors can adapt when scaling teams quickly. Year 1 follow-on analysis will report longitudinal results, including relationships between training exposure and process-consistency indicators, and will support ongoing module refinement and content governance as adoption scales.

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