



**Building
Transformations**

BUILDING ON WHAT'S REAL

Practitioner Insights on Prefabrication & Offsite,
BIM, VDC & Construction Management,
and Venture, IT & Innovation

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Building Transformations 2026 U.S. Industry Summit | April 22 Collaboration Sessions

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About This Document

On April 22, 2026, Building Transformations hosted Collaboration Sessions as part of the 2026 U.S. Industry Summit at the Diverge Innovation Center in Phoenix, Arizona. Following a morning of keynote presentations, an executive panel on AI and automation, and an afternoon of live technology demonstrations in the Innovation Showcase, attendees gathered in facilitated small-group discussions organized around six industry think tank topics.

This white paper captures the key insights, practical observations, and strategic questions that emerged from those sessions. These discussions were grounded in what participants had just witnessed on the demonstration floor, making them unusually applied and concrete.

The sessions drew on a deliberately broad cross-section of the industry: contractors, designers, technology vendors, venture investors, and owners. The result was a set of conversations that cut across organizational boundaries to surface the tensions, opportunities, and practical realities that rarely make it into formal industry publications.

Collaboration Session Facilitators

Building Transformations would like to thank the following industry leaders for facilitating the Collaboration Sessions:

- Alex Belkofer — VP, Digital Products & Platforms | Digital Enterprise, McCarthy Holdings, Inc.
- Alice Leung — Director, Building Transformations | Principal, Brick & Mortar Ventures
- Aaron Toppston — Director, Building Transformations | Managing Partner - GS Futures
- Angelo Lago — Director of VDC, Hensel Phelps
- Brandon Searle — Past Chair, Building Transformations | Director of Innovation and Operations, UNB Off-site Construction Research Centre
- Cliff Cole — Director of Virtual Design and Construction, The PENTA Building Group
- Dustin Ridley — SW Region VDC Leader, DPR Construction
- Hannu Lindberg — Chair, Board of Directors, Building Transformations | Construction Technology, DPR Construction
- Hammad Chaudhry — VP, Innovation & Digital Construction, Pomerleau
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- Lindsay Rem — Senior Vice President, Business Transformation, Barton Malow
- Mitch Cornelius — Director, Building Transformations | Chief Technology Officer, Fortis Construction Inc.
- Patrick Lalonde — Vice President, Digital Project Delivery, EllisDon
- RJ Reed — Vice President, Project Delivery Innovation, The Whiting-Turner Contracting Company
- Thai Nguyen — Director, Building Transformations | Director of Innovation, Hensel Phelps



Executive Summary

The Collaboration Sessions brought the energy of the Innovation Showcase floor into focused, practitioner-level dialogue. Participants had just spent hours watching robots lay out walls, site cameras capture progress, and AI tools process project data in real time. The question at every table was the same, even if it was asked differently: **why is the gap between what the technology can do and what the industry actually does still so wide?**

Three answers emerged across all three sessions with striking consistency:

- **The field is the final customer, and it is being underserved.** The superintendent, the tradesperson, the foreman: these are the people whose daily work is most directly affected by the decisions being made in boardrooms and design studios. Every session surfaced a version of the same failure mode: tools, systems, and innovations designed without adequate input from the people who have to use them.
- **The integration problem is cultural, not technical.**
 - **BIM:** Quality varies project to project not because the tools are inadequate, but because leadership does not demand consistency.
 - **Prefab:** GC owners are often reluctant to give up the scope and self-perform work they currently control — and that resistance is the single largest organizational barrier to adoption. Until procurement structures and contract models change to reward system-wide outcomes over individual self-performance, prefab will continue to succeed project-by-project without ever becoming standard practice.
 - **Venture-backed technology:** Pilots fail to scale not because the technology doesn't work, but because firms lack the organizational commitment to turn them into practice.
- **The industry's real leverage point is upstream.** Whether the topic was prefabrication, BIM, or technology investment, the recurring insight was that outcomes are largely determined before a shovel hits the ground. Early design-assist, early manufacturer involvement, early data standards, early contractual alignment, the organizations getting the most value from new tools are the ones that have moved the relevant decisions earlier in the project lifecycle.

SECTION 1

BIM, VDC & Construction Management: The Value Gap

The BIM, VDC & Construction Management session brought together a group of senior industry practitioners for a frank conversation about why, after 15+ years of mainstream BIM adoption, the quality and value delivered by VDC still varies so dramatically from project to project.

"BIM Projects Don't Get Better Later"

The session opened with a phrase that set the tone for everything that followed: "BIM projects don't get better later." The group's central diagnosis was that the quality of a BIM model, and the value it delivers, is largely determined by decisions made in the first 20% of the project. When BIM is brought in too late, when VDC is bolted onto a broken process rather than integrated from the start, and when leadership treats modeling as a documentation exercise rather than a decision-support tool, the downstream consequences are largely irreversible.

The group was candid that VDC is still, in too many organizations, plugged into a broken system. The tools have matured. The workflows have not. And the people responsible for changing those workflows, senior leaders and C-suite executives, still, in many organizations, do not understand the value that VDC delivers or how to demand it effectively.

The C-Suite Buy-In Problem

The group spent significant time on an organizational challenge that is not new but remains stubbornly unresolved: C-suite leaders who do not understand the strategic value of BIM and VDC, and therefore do not create the organizational conditions for it to deliver that value. Change management issues with leadership were cited as one of the two biggest challenges in the space, the other being skilled labor.

The group's diagnosis of why this persists was sharp: the VDC community has historically been better at demonstrating technical capability than at communicating business value. Zero-sum KPIs "metrics that measure cost and effort without capturing the rework avoided, the coordination conflicts prevented, or the decisions made faster" make the "cost of goals not scored" invisible. When leadership cannot see the value that VDC prevents rather than produces, the case for investment is perpetually vulnerable to budget pressure.

The prescription the group converged on: the VDC community needs to do a substantially better job of telling its own value proposition story, in the language of business outcomes, not technical outputs. The target audience is not other VDC professionals. It is the superintendent, the project executive, and the C-suite leader who controls the resources.



Participants, including Thai Nguyen and Brian Skripac, discuss current industry challenges.

The Superintendent as the True North

One of the session's most grounded insights was the identification of the superintendent as the primary target audience for VDC value communication, and the most underserved recipient of BIM outputs. The question "How does what we do help the field?" was posed not as a rhetorical challenge but as a genuine gap analysis: too much VDC output is formatted for the design coordination meeting, not for the person running the crew on the ground.

Getting data to the field, in a format that superintendents can actually use, at the moment they need it, without requiring them to navigate complex model viewers or interpret abstract coordination reports, was identified as the highest-value and most underinvested application of VDC capability. Reducing rework, enabling accurate daily planning, and surfacing conflicts before they become field problems are all outcomes the superintendent cares about deeply. The VDC community's challenge is to make the connection between model work and field outcome legible to the people who experience it directly.

The BIM/VDC Challenge Framework

- **Root cause:** BIM brought in too late; VDC integrated into broken workflows rather than restructured ones
- **Leadership gap:** C-suite and project executives do not understand VDC value and the VDC community has not communicated it effectively
- **Metrics problem:** Zero-sum KPIs make the “cost of goals not scored” (rework avoided, conflicts prevented) invisible
- **Field disconnect:** VDC outputs are formatted for coordination meetings, not for field use by superintendents and foremen
- **Career evolution:** Future BIM/VDC professionals need data management and risk management skills, not just modeling skills
- **The fix:** Predict, Simulate, and Inform the construction delivery lifecycle, from early design through operations handover

Connecting VDC to Operational Value

The group articulated a vision that extends VDC's role beyond construction coordination into the full asset lifecycle: Predict, Simulate, and Inform the construction delivery lifecycle. This framing positions VDC not as a modeling exercise but as a decision intelligence function, one that uses digital information to reduce uncertainty at every stage from design through operations.

The future of BIM and VDC careers, the group argued, is in data management and risk management, not in model production. As AI tools take on more of the mechanical work of model creation and coordination checking, the premium capabilities become those that translate digital information into operational decisions: what are the risks, what are the alternatives, and what is the right call?

SECTION 2

Prefabrication, Offsite & Modularization: Beyond the Pilot

The Prefabrication, Offsite & Modularization session examined the current state and near-term trajectory of offsite construction across North America, with particular attention to where adoption is actually gaining traction, and what is holding it back everywhere else.

The Tools Were Built for the Wrong Environment

One of the session's opening observations was pointed: most of the robotics and technology tools showcased on the Innovation floor that morning were designed for the stick-built jobsite environment, not for the factory floor where prefab happens. Exoskeletons, automated painting systems, and reality capture tools all have genuine application in a controlled manufacturing setting, but they were not optimized for it. The controlled, repeatable conditions of a factory environment actually make these tools more effective, not less, and the industry has not yet fully made that conceptual shift.

The factory environment offers structural advantages that the jobsite simply cannot: consistent conditions enabling reliable robotic performance, weather and trade conflict elimination, and the ability to run operations continuously across shifts. A rebar-tying robot that struggles with the variability of an open jobsite performs reliably when operating in a controlled factory setting. The session participants argued that the next frontier is not adapting jobsite tools for the factory, but designing tools and workflows specifically for the factory environment from the ground up.

The Wet Trades Bottleneck

Every participant who had visited or operated a volumetric modular factory identified the same constraint: mudding and painting. These wet trades represent the single biggest production bottleneck in every factory visited, a constraint that undermines the throughput advantages that justify factory-based construction in the first place.

The solution the session converged on is overnight robotic finishing. Automated painting and finishing systems (Canvas was cited as an example) running during off-shifts could effectively eliminate the wet trade bottleneck, allowing modules to be ready for the next assembly stage at the start of each day. This is not speculative: the technology exists. The gap is adoption and integration into factory workflow design.

Design for Robotic Installation: The Next Evolution

The session challenged the industry to move beyond Design for Manufacturing and Assembly (DFMA), which optimizes components for human-operated fabrication, toward Design for Robotic Installation (DFRI): designing components, connections, and sequences specifically to leverage robotic capabilities.

This is a meaningful conceptual shift. Current prefab components are largely designed around human physical and cognitive constraints: what a person can lift, reach, and align. Robots do not share those constraints. They can handle larger or smaller components, execute multiple simultaneous operations, and achieve tolerances that human installation cannot consistently match. Designing to leverage those advantages, rather than simply automating what humans currently do, represents the next phase of prefab evolution.



On display at the Summit: The Okibo robot performing autonomous drywall finishing in a live project simulation.

Where Adoption Is Actually Happening

The session was candid about the uneven geography of prefab adoption across North America. The patterns are not accidental; they reflect specific economic and workforce realities.

In the United States, adoption is strongest in institutional construction: hospitals, schools, and data centers. Hospitals adopt prefab for precision requirements, surgery rooms and MRI suites demand tolerances that field installation struggles to meet consistently. Schools benefit from speed and reduced site disruption. Data centers are driven by revenue timing: every week of construction delay has a quantifiable cost in lost uptime revenue, making a speed premium economically straightforward to justify. In Canada, the driver is different: residential construction in markets with acute workforce shortages and remote project locations. When qualified trades are simply unavailable, prefab is not a choice, it is a necessity. This workforce-constraint dynamic is increasingly relevant to US markets as skilled labor shortages deepen.

MEP trades are the current leaders in sophisticated prefab adoption. Advanced shops with revenues above \$100 million have already deployed robotic welding, cutting, and bending as standard practice, driven by labor constraints and demand levels that make capital investment in automation clearly justified. Precast concrete is gaining ground in markets where forming crew costs have escalated significantly.

Traction Snapshot: Where Prefab Is Winning

- **Healthcare (US):** Precision requirements in surgical suites, MRI rooms, and critical care environments drive factory production
- **Data Centers (US):** Revenue timing makes construction speed a quantifiable financial premium
- **Education (US):** Speed and site disruption reduction benefit schools in active community settings
- **Residential (Canada):** Workforce shortages and remote projects make offsite a necessity, not a preference
- **MEP Fabrication Shops:** Robotic welding, cutting, and bending already standard in top-tier shops with \$100M+ revenue
- **Precast Concrete:** Gaining market share as forming crew costs escalate in key markets

The Upstream Integration Imperative

The session's most consistent prescription was upstream integration, and the most consistent barrier to it was the traditional procurement and contract structure that keeps architects, GCs, manufacturers, and trade contractors in separate silos until too late in the design process.

The participants were direct about what needs to change. Architects need prefab education that goes beyond delegating the decision to trade contractors. GC owners need to understand that adopting prefab means giving up some scope and control they currently self-perform, and that resistance is the single

largest organizational barrier to adoption among GCs. Manufacturers need to be involved during design assist, before procurement, to enable the trade-off analysis and bulk purchasing benefits that drive the economic case.

On the contracting side, the session noted that Integrated Project Delivery (IPD) is conceptually well-suited to prefab but raises unresolved questions about how economic value is shared. Modified design-build, which brings MEP contractors into the design process early without the full risk-sharing complexity of IPD, is showing promise as a practical middle path. Modified contract templates, including adaptations of the Canadian CCDC, are enabling better early collaboration in markets where they have been adopted.

The session also emphasized that prefab does not have to be an all-or-nothing decision. Kitchen and bathroom pods, MEP skids, and precast elements are accessible entry points for organizations not ready for full volumetric modular. Matching the prefab strategy to local workforce skills, geography, and sector maturity is more important than maximizing the scope of offsite work on any given project.

SECTION 3

Venture, IT & Innovation: From Pilot to Practice

The Venture, IT & Innovation session brought together a cross-section of contractors, technology leaders, and investors for a discussion that moved fluidly between the investment landscape, the organizational dynamics of innovation adoption, and the practical question of what it actually takes to turn a successful pilot into a permanent change in how a firm operates.

Is the Right Problem Being Solved?

The session opened with a candid assessment of the construction technology investment landscape. Participants had just walked through a vendor hall featuring dozens of funded startups, and the group's collective read was nuanced: some of the bets looked right, and some are solving the wrong problem.

The group identified a recurring failure mode in construction technology investment: products that are technically capable but misaligned with the actual workflow or purchasing behavior of their target customers. "Clients rarely ask for a cap table", meaning end-users do not evaluate tools based on who invested in them. They evaluate tools based on whether they solve a real problem in their daily workflow. The investor's thesis and the operator's reality are often misaligned, and that gap is where a lot of construction technology fails to scale.

The group also raised the question of GC-led investment: when a general contractor invests in a technology company, does that firm exert too much product influence, potentially narrowing the tool's applicability? The gut-check answer from the session was that product/market fit is a stronger signal than investor identity, but the concern about capture is legitimate and worth naming.

Innovation Is Culture, Not Just Action

The session's most-cited insight was concise: innovation is culture, not just action. Ideation without organizational culture to support it produces a graveyard of pilots. The group was explicit that the challenge most firms face is not generating new ideas, it is creating the conditions in which good ideas survive long enough to become standard practice.

A practitioner-shared innovation framework was discussed as a practical model for thinking about how organizations can structure their innovation function:

The Innovation Maturity Spectrum

- **Define:** Clearly articulate the problem before pursuing solutions
- **Optimize:** Apply lean thinking to improve existing processes before reaching for new tools
- **Reimagine:** Adopt a new tool or approach that meaningfully changes how work gets done
- **Disrupt:** Identify what's genuinely new: the "what's new now" question that has no existing playbook
- **The operating principle:** Win small, move to bigger goals. Credibility is built through demonstrated results at each stage, not through ambitious announcements.

The group observed that most firms spend too much time oscillating between "define" and "reimagine", either stuck in problem articulation or jumping straight to new tool adoption, without doing the hard work of optimization that builds organizational competence and confidence.

Getting Ideas Into Operation: The Collaboration Imperative

A theme that surfaced repeatedly was the gap between having an idea and getting it into operation, and the role that collaboration and external input play in closing that gap. The group's formulation: two heads are better than one in getting true ideas into practice. Share early and get opinions widely.

This is not simply a platitude about teamwork. It reflects a genuine organizational pattern: ideas that are developed in isolation, without testing against diverse operational perspectives, tend to fail at implementation in ways that are predictable and preventable. The firms that have had the most success scaling technology adoption are those that built feedback loops between the people generating ideas and the people who have to execute them.

Ideation, the group argued, must be vetted against market and operational reality, not just presented to leadership for approval. The architect who can lead innovation through specification language but finds that "people don't like change" is experiencing the gap between a technically correct answer and an organizationally viable one. Closing that gap requires building trust, demonstrating value at small scale, and building coalitions before announcing transformation.

From Pilot to Practice: What It Actually Takes

The session's closing discussion returned to the facilitator's anchor question: most construction technology gets adopted project by project rather than company-wide. What does it take to turn a successful pilot into a permanent change in how a firm operates?

The group's synthesis was pragmatic:

- Executive sponsorship is necessary but not sufficient. A champion in the C-suite can protect a pilot. Only operational champions at the project level can replicate it.
- Measurement must be built in from the start. Pilots without clear, pre-defined success metrics cannot be defended when budgets tighten. The ROI story needs to be written before the pilot begins, not after.
- The change management cost is real and must be budgeted. Technology adoption fails more often because of training, workflow adjustment, and resistance management than because of technical shortcomings. Organizations that do not budget for change management are setting their pilots up to die.
- Small wins build the coalition. The path from pilot to practice runs through a series of credible, visible, communicable wins. The goal of the first implementation is not to prove the technology, it is to build the organizational constituency that will carry it forward.

CROSS-CUTTING THEMES

Strategic Themes Across All Sessions

Three themes surfaced consistently during the session, pointing to systemic forces that no single topic group can resolve on its own.

1. Culture Is the Constraint

In each session, the deepest barriers to progress were cultural, not technical. BIM quality varies not because better tools are unavailable but because leadership does not demand consistency. Prefab stalls not because the economics are unclear but because organizational incentives reward self-performance over system optimization. Technology pilots die not because they fail technically but because firms lack the organizational infrastructure to replicate them. The industry's technology capability has outpaced its change management capability, and that gap is where most value gets lost.



Mitch Cornelius led participants into the dedicated breakout sessions to tackle prepared discussion topics.

2. The Field Must Be the Starting Point

Every session identified a version of the same failure: decisions made far from the work site that do not adequately reflect the reality of the people doing the work. The superintendent is underserved by VDC outputs. The tradesperson is asked to adapt to prefab strategies designed without their input. The field operator is handed technology that was evaluated by managers who will not use it daily. The organizations getting the most value from new tools and new approaches are consistently those that have built direct feedback loops between innovation and execution.

3. Upstream Decisions Determine Downstream Outcomes

Whether the topic was prefab sequencing, BIM model quality, or technology adoption, the recurring insight was that leverage lies upstream. Early manufacturer involvement determines prefab economic viability. BIM quality is set in the first 20% of the project. Technology pilots succeed or fail based on decisions made before the first implementation meeting. The industry's persistent pattern of making consequential decisions late, in response to problems rather than in anticipation of them, is the single largest source of recoverable waste.

LOOKING AHEAD

Open Questions for the Industry

The sessions identified the following as priority questions for deeper industry dialogue, recommended for Building Transformations Think Tanks and future programming:

- DFRI standards: What design standards, tolerances, and interface specifications need to be developed to enable Design for Robotic Installation as a mainstream practice?
- Factory floor technology: How should the industry collectively accelerate the development of tools designed for the factory environment rather than adapted from the jobsite?
- VDC value communication: How can the VDC community develop standard frameworks for communicating the value of avoided rework and prevented conflict in the language of business outcomes, not technical metrics?
- BIM deployment standards: What role should owners, GCs, and industry associations play in establishing and enforcing minimum BIM quality and deployment timing standards across project types?
- Innovation infrastructure: What organizational structures, staffing models, budget frameworks, governance mechanisms, are most effective at turning construction technology pilots into company-wide practice?
- Investment alignment: How can the construction technology investment community better align product development priorities with the actual workflow and procurement realities of end users in the field?
- Prefab contracting evolution: What contract modifications are needed to enable early manufacturer involvement, shared risk/reward models, and the scope transitions that high-adoption prefab strategies require?

About Building Transformations

Building Transformations is **North America's largest building technology and innovation community**, dedicated to transforming the built environment through knowledge-sharing, collaboration, and the advancement of technology in architecture, engineering, construction, and operations. Our mission is to empower professionals to drive this evolution, fostering a culture committed to continuous industry innovation.

➤ For more information visit our website: www.buildingtransformations.org

Message from our Chair

Our industry is no longer just preparing for digital transformation, but actively living it. The rapid integration of artificial intelligence and high-velocity digital workflows has set a new benchmark for excellence, moving us beyond simply adopting tools, to redefining how we design, build, and maintain the world. At Building Transformations, our community stands as the vanguard of this progress, architecting solutions that bridge the gap between futuristic concepts and practical, sustainable reality.

Our strategy is focused on empowering our core members and growing a robust ecosystem that drives meaningful, strategic partnerships. We are committed to fostering deeper collaboration and dismantling traditional silos through reimagined, immersive event experiences where the future of the built environment is demonstrated in real-time. Your membership is the engine of this progress, providing the infrastructure to raise the technological maturity of the entire supply chain while ensuring human expertise remains at the heart of every digital advancement.

By joining our community and participating in our initiatives, you are taking a leadership role in helping shape the direction of the AEC industry. Together, we are building a community where industry and technology leaders collaborate to solve pressing challenges and drive meaningful progress across the built environment.

The future of our industry is being shaped right now, and we invite you to help lead that transformation through collaboration, innovation, and a shared vision for what comes next. Thank you for your continued leadership and participation!



Hannu Lindberg
Chair - Building Transformations

Vision

Transforming the built environment through innovation.

Mission

Foster a community that is committed to knowledge-sharing and advancing technology and innovation in the built environment.

What We Do



Events



Think Tanks



Networking



Awards



Publications



Career Posts

➤ www.buildingtransformations.org/about

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