
How Trust Works in Collaborative Construction: An Integrative Review of Antecedents, Development, and Performance Pathways

AUTHOR(S) ¹Hemanth Kumar Ummadisetti, ²Kenneth Sullivan, PhD, ³Rebecca Kassa, PhD, ⁴Brian Lines, PhD, ⁵Jake Smithwick, PhD

AFFILIATION(S) ¹Arizona State University, email: hummadis@asu.edu
²Arizona State University, email: Kenneth.Sullivan@asu.edu
³Simplar Foundation, email: rebecca.kassa@simplar.com
⁴University of Kansas, email: brianlines@ku.edu
⁵University of North Carolina at Charlotte, email: Jake.Smithwick@charlotte.edu

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ABSTRACT

Purpose. Trust is repeatedly described as essential to collaborative construction, yet the literature often treats it as an undifferentiated success factor, equates it with trustworthiness or cooperation, and links it directly to project outcomes without specifying the behaviors through which it operates. This paper develops an integrative explanation of how trust is formed, changes over time, and affects performance in temporary, multi-organization construction projects.

Design/methodology/approach. A concept-centric integrative review synthesizes foundational organizational trust theory with construction and project research on partnering, alliancing,

collaborative delivery, contracting, teams, and interorganizational governance. Sources were identified through iterative trust-and-construction searches, targeted journal searches, and backward and forward citation chaining. The literature was coded around construct boundaries, antecedents, temporal development, level and target of trust, trusting behaviors, performance pathways, and boundary conditions.

Findings. Trust is best treated as a directional and domain-specific willingness to accept vulnerability, grounded in but distinct from perceived ability, benevolence, integrity, commitment, and institutional safeguards. Trust evolves recursively through initialization, early calibration, reciprocal reinforcement, routinization, strain, repair or erosion, and potential carryover across projects. Trust affects cost, schedule, safety, quality, productivity, innovation, and satisfaction indirectly by enabling information sharing, voice, reliance on commitments, joint adaptation, reduced defensive monitoring, learning, and constructive conflict handling. The strength and direction of these pathways depend on power, trust asymmetry, project phase, task uncertainty, prior ties, control enactment, and the risk of overtrust.

Originality/value. The paper replaces the common antecedent-to-trust-to-performance shorthand with a multilevel, recursive process model. It separates trust from adjacent constructs, identifies the proximal behaviors that connect trust to performance, incorporates breach, repair, asymmetry, and overtrust, and provides a measurement and research agenda suited to construction's temporary and contractually fragmented setting.

Keywords: trust; interorganizational trust; collaborative construction; relational governance; partnering; project alliancing; integrated project delivery; psychological safety; knowledge sharing; project performance

1 Introduction

Construction projects require organizations that remain legally separate to behave, for a limited period, as a functioning production system. Owners, designers, constructors, specialty contractors, suppliers, operators, and regulators possess different resources, information, and accountabilities, yet the performance of each depends on decisions and actions controlled by others. This combination of reciprocal interdependence, uncertainty, incomplete contracts, and temporary organization makes vulnerability unavoidable. A contractor relies on design information it did not produce; an owner relies on cost and progress information held by contractors; one trade relies on another to complete a handoff; and the project team relies on participants to surface bad news before it becomes failure. Trust is therefore not an optional atmosphere surrounding construction. It is part of the governance problem created whenever one party must act before it can fully verify or control another party's behavior ([Kadefors, 2004](#); [Pinto et al., 2009](#); [Fulmer and Gelfand, 2012](#)).

The construction literature recognizes this importance. Trust has been associated with partnering, alliance culture, open communication, supply-chain integration, lower opportunism, knowledge sharing, productivity, dispute avoidance, and project success, while critical reviews warn that a partnering label alone does not create the required relational conditions ([Bresnen and Marshall, 2000](#); [Bygballe et al., 2010](#)) ([Khalfan et al., 2007](#); [Lau and Rowlinson, 2009](#); [Laan et al., 2011a](#); [Chalker and Loosemore, 2016](#); [Jiang et al., 2016](#)). Collaborative delivery models make the construct even more central because they ask parties to share information, decisions, resources, risk, and sometimes reward. These practices expose participants to one another's discretion more deeply than arm's-length coordination. Recent construction research has accordingly examined mutual trust in alliance projects, the deliberate development of trust in collaborative hospital projects, measurement models for construction trust, and meta-analytic relationships among trust-building mechanisms, governance, and performance ([Moradi and Sormunen, 2025](#); [Gao et al., 2025](#); [Tulokas et al., 2026](#); [Wu et al., 2026](#); [Zheng et al., 2025](#)).

Recognition, however, has not produced a unified explanation of how trust works. Four problems recur. First, trust is frequently conflated with its antecedents and consequences. Ability, integrity, benevolence, fairness, open communication, commitment, cooperation,

psychological safety, and project success are sometimes included in the same scale or success-factor list even though they occupy different positions in a causal system. Second, trust is often treated as a static team attribute measured once, usually near project completion, despite evidence that it is directional, domain-specific, event-sensitive, and path-dependent. Third, performance models commonly draw a direct arrow from trust to cost or schedule outcomes, bypassing the behaviors through which a psychological or relational state could influence physical production. Fourth, project-level averages obscure the levels and asymmetries that matter: one individual may trust a counterpart but distrust the counterpart's organization; the owner may trust the contractor more than the contractor trusts the owner; and a project may possess institutional confidence in its governance while particular dyads remain defensive ([Lau and Rowlinson, 2009](#); [Fulmer and Gelfand, 2012](#); [Li et al., 2024](#)).

These limitations matter theoretically and practically. A project cannot manage trust effectively if it does not know whether the problem is perceived competence, integrity, benevolence, payment reliability, power abuse, information quality, or fear of blame. Nor can researchers establish mediation if trust, trusting behavior, collaboration, and performance are measured as variations of the same favorable perception. The distinction is consequential because formal controls can support trust by making behavior predictable and protecting parties from opportunism, but they can also signal distrust or become instruments of unilateral power. Open-book accounting can operate as a shared decision resource in one project and as surveillance in another. The effect depends not only on the clause or tool but on how it is interpreted and enacted ([Badenfelt, 2010](#); [Zhang et al., 2020](#); [Koolwijk et al., 2022](#)).

Trust is the connective mechanism through which contractual, organizational, and cultural collaboration is converted into behavior and performance. Fair and transparent structures make vulnerability rational, repeated joint work provides evidence of reliability, and one-team norms support deeper candor and discretionary effort ([Ummadisetti, 2026](#)). Although this framing is a useful point of departure, an integrative review requires two refinements. The first is that trust does not invariably mature through one linear sequence from calculus to knowledge to affect. Different bases and levels can coexist, advance, stall, or reverse. The second is that trust should not be treated as a direct performance-producing force. Its effect is realized through specific choices to disclose, rely, coordinate, speak up, adapt, learn, and refrain from defensive or opportunistic conduct.

This paper therefore asks three questions: (1) What antecedents create and shape trust in collaborative construction? (2) How does trust develop, stabilize, fracture, repair, and transfer over the life of a temporary interorganizational project? and (3) Through which proximal behavioral pathways does trust influence project performance, and under what boundary conditions? The review uses collaborative construction broadly to include projects that require substantial interorganizational integration, including partnering, alliancing, integrated project delivery, relational contracting, collaborative contracting, and comparable owner-led arrangements. The presence of such a label is not assumed to prove that trust or collaboration exists.

The paper makes five contributions. First, it clarifies the construct by separating trust from trustworthiness, propensity, trusting behavior, collaboration, psychological safety, distrust, and performance. Second, it organizes antecedents into actor, history, governance, organizing-process, leadership-and-culture, and contextual systems. Third, it develops a recursive life-cycle account that includes initialization, calibration, reinforcement, routinization, breach, repair, erosion, and carryover. Fourth, it specifies seven proximal pathways through which trust changes what participants do. Fifth, it identifies boundary conditions and measurement requirements that explain why similar formal arrangements can produce different trust and performance results. The resulting model treats trust as managed vulnerability: neither goodwill that should be assumed nor control that should be eliminated, but a relational capacity that must be designed, tested, calibrated, and protected.

2 Review Approach

The paper uses an integrative review because the objective is theory development across partially disconnected literatures rather than exhaustive estimation of one effect. Integrative reviews are appropriate when a field contains diverse conceptualizations, methods, levels of analysis, and empirical settings that must be reorganized into a coherent explanatory structure ([Torraco, 2005](#); [Whittemore and Knafl, 2005](#); [Snyder, 2019](#)). The approach is concept-centric: papers are compared according to what they say trust is, who trusts whom, what creates it, how it changes, which behavior it enables, and what outcomes follow.

The source-identification process combined four streams. First, foundational organizational and interorganizational trust research was used to establish construct boundaries, levels, development, control relationships, repair, and measurement. Second, construction-specific trust studies were identified through iterative combinations of trust with construction, project, owner-contractor, subcontracting, partnering, alliance, collaborative delivery, and relational governance terms. Third, targeted searches were conducted within leading construction and project journals, followed by backward and forward citation chaining from seminal construction studies such as [Kadefors \(2004\)](#), [Khalfan et al. \(2007\)](#), [Wong et al. \(2008\)](#), [Pinto et al. \(2009\)](#), and [Laan et al. \(2011a\)](#). Fourth, the search was updated through August 2026 to incorporate recent measurement, process, and meta-analytic studies ([Gao et al., 2025](#); [Moradi and Sormunen, 2025](#); [Zheng et al., 2025](#); [Tulokas et al., 2026](#); [Wu et al., 2026](#)).

A source was retained when it directly addressed at least one of six analytical needs: the definition or dimensionality of trust; antecedents or trust-building mechanisms; temporal development, breach, repair, or continuity; relationships among trust, control, and power; trusting behavior or a proximal performance mechanism; or measurement at interpersonal, team, interorganizational, or institutional levels. Studies that merely listed trust as one generic success factor without defining or analyzing it were used sparingly. Industry commentary and case descriptions were not treated as equivalent to peer-reviewed evidence. The review does not claim statistical exhaustiveness and is not a meta-analysis; its purpose is to integrate theoretical mechanisms and expose gaps that a purely numerical review could preserve rather than resolve.

Analysis proceeded through iterative coding and comparison. Initial codes followed the distinction among structural conditions, repeated interaction, culture, trust, and performance. Then it was expanded when the literature required finer separation among trustworthiness beliefs, trust, trusting intention, trusting behavior, levels and targets, asymmetry, distrust, breach, and feedback. Competing claims were retained rather than forced into a single positive narrative. In particular, the synthesis treats formal control as potentially trust-supporting or trust-eroding, prior ties as an accelerator rather than a guarantee, high trust as potentially productive or excessive, and collaboration as an outcome of trusting action rather than a synonym for trust.

The method has limitations that should remain visible. An integrative review depends on conceptual judgment in selecting and combining heterogeneous studies. Construction trust research varies in definition, unit of analysis, timing, and outcome measurement, which limits direct comparison. These constraints do not invalidate theory-building, but they mean that propositions developed below should be tested rather than treated as effects already established.

3 Conceptual Foundations: What Trust is, Where it Resides, and What it is Not

3.1 Trust as Willingness to Accept Vulnerability

The most useful starting point is [Mayer et al.'s \(1995\)](#) definition of trust as the willingness of a party to be vulnerable to the actions of another based on positive expectations about the other's intentions or behavior. [Rousseau et al. \(1998\)](#) similarly emphasize positive expectations under conditions of risk and interdependence. Two elements are indispensable. There must be consequential vulnerability: something valued can be harmed, delayed, misused, or withheld. The trustor must also proceed without complete control or verification. Routine predictability under perfect enforcement is not trust because no meaningful discretion remains.

Trust is therefore directional and relational. It is held by a trustor about a trustee, for a particular domain, at a particular time. The team has high trust is analytically incomplete unless the referent is specified. An owner may trust a contractor's technical ability but not its cost reporting. A superintendent may trust another firm's superintendent to honor a daily commitment but not the firm's commercial department to resolve a change fairly. A trade partner may trust an individual project manager while distrusting the organization that employs that person. These distinctions are especially important in construction, where individuals, firms, contracts, and temporary project systems overlap but do not collapse into one actor ([Lau and Rowlinson, 2009](#); [Fulmer and Gelfand, 2012](#)).

Trust is also distinct from perceived trustworthiness. Ability, benevolence, and integrity are judgments about why a trustee may deserve trust; they are not trust itself ([Mayer et al., 1995](#); [Colquitt et al., 2007](#)). Recent construction measurement work adds commitment as a salient factor and translates the broader judgments into observable

indicators ([Wu et al., 2026](#)). The distinction matters because a party can be judged technically capable but self-interested, ethically sound but under-resourced, or benevolent but unable to perform. Different weaknesses call for different interventions. Training addresses ability; transparent decision rules may address integrity concerns; incentive alignment and demonstrated concern may address benevolence; staffing and continuity may address commitment.

The trustor's general propensity to trust is another antecedent rather than the focal state. Propensity matters most before specific evidence is available, but it is gradually recalibrated by experience. Construction participants do not enter projects as blank slates. They bring occupational norms, organizational histories, prior disputes, reputations, procurement experience, and beliefs about owners, contractors, designers, or subcontractors. These priors can support swift engagement or create defensive starting conditions that persist despite collaborative rhetoric ([McKnight et al., 1998](#); [Kadefors, 2004](#); [Koolwijk et al., 2022](#)).

3.2 Trust, Trusting Behavior, Collaboration, Psychological Safety, and Distrust

Trust is not identical to trusting behavior. A participant may believe another is trustworthy yet decline to rely because contractual exposure, organizational policy, or the magnitude of risk is too high. Conversely, a participant may comply with a counterpart's decision because the counterpart has power, not because trust exists. Trusting behavior occurs when the trustor actually accepts vulnerability through actions such as disclosing sensitive information, relying on a promise, delegating discretion, sharing a resource, or raising a problem without defensive protection. Separating the state from the action makes performance pathways testable.

Trust is likewise not collaboration. Trust can make collaboration possible by reducing the perceived danger of shared decision-making, but collaboration is an interaction and governance phenomenon. Parties collaborate when they jointly govern interdependent work, combine knowledge, and adapt together; they trust when they accept exposure based on expectations about one another. Collaboration can generate further trust through successful interaction, making the relationship reciprocal rather than unidirectional. It can also produce disappointment or breach when shared action reveals incompetence, unfairness, or opportunism.

Psychological safety overlaps with but is not reducible to trust. Psychological safety is a shared belief that a team is safe for interpersonal risk-taking, particularly speaking up, admitting uncertainty, and reporting mistakes ([Edmondson, 1999](#)). Trust is broader and may concern technical reliance, commercial fairness, confidentiality, or future conduct. A project can have interpersonal warmth yet low technical trust; it can also have confidence in a counterpart's competence while people remain afraid to challenge senior leaders. Psychological safety is therefore one cultural condition and one behavioral pathway through which trust may affect quality, safety, and learning, not a substitute label for trust.

Trust and distrust are not always opposite ends of one line. A participant may simultaneously trust a counterpart in one domain and distrust the same counterpart in another, or maintain positive expectations alongside active vigilance ([Lewicki et al., 1998](#)). This possibility is common in construction. A firm may trust a long-standing partner to perform field work while distrusting its claims strategy under commercial pressure. Treating distrust only as low trust hides the distinct signals, safeguards, and repair actions required when negative expectations are active.

Performance is also not evidence that trust exists or caused the result. A project may perform well through tight control, excess resources, favorable scope, or exceptional individuals even when relationships are defensive. Conversely, a high-trust team may experience a poor outcome because of an external shock, incorrect design basis, or capacity failure. Trust research must therefore distinguish the relational state, the behavior it changes, and the distal performance outcome.

3.3 Levels and Bases of Trust

Three levels recur in collaborative construction. Institutional or system-based trust rests on confidence that roles, contracts, professional norms, dispute processes, governance bodies, and information systems make conduct sufficiently predictable ([Bachmann and Inkpen, 2011](#)). Interorganizational trust concerns expectations about another firm as an organizational actor. Interpersonal trust concerns identifiable people whose judgments and actions are experienced directly. These levels influence one another but can diverge, as research distinguishing interpersonal and interorganizational trust has repeatedly shown ([Zaheer et al., 1998](#); [Lau and Rowlinson, 2009](#)). Strong interpersonal relationships may temporarily compensate for weak organizational systems, yet they are vulnerable to personnel turnover. Strong alliance structures may create provisional

system confidence, yet daily behavior must confirm it. Recent hospital-project research makes this multilevel character explicit by treating institutional, organizational, and interpersonal trust as jointly managed conditions ([Tulokas et al., 2026](#)).

The literature also distinguishes bases or forms of trust, while multilevel team research cautions that trust formation and performance relationships can differ across levels and contexts ([Costa et al., 2018](#); [de Jong et al., 2016](#)). System-based trust derives from safeguards and institutional arrangements; cognition-based or calculus-based trust rests on evidence, reputation, competence, and aligned interests; knowledge-based trust develops as behavior becomes predictable through interaction; and affect- or identification-based trust reflects care, shared identity, and internalized concern for the relationship ([McAllister, 1995](#); [Cheung et al., 2011](#)). These categories are useful, but they should not be treated as a universal staircase. A project can possess strong system confidence and interpersonal affect simultaneously. Affect may develop in one dyad while another relationship remains calculative. A party may deliberately retain formal safeguards even after relational trust deepens.

The appropriate conclusion is not that contracts create one form of trust, organizational practices create a second, and culture creates a third in a fixed order. Rather, different mechanisms provide different kinds of evidence and protection. Fair contracts can make initial engagement rational; integrated work can reveal competence and reliability; respectful interaction can establish benevolence and identity. The bases reinforce one another when consistent and contradict one another when not. A warm culture cannot overcome repeated failure to perform, and a sophisticated contract cannot sustain candor if leaders punish the first person who reports bad news.

Table 1 *Construct Boundaries for Studying Trust in Collaborative Construction*

Construct	Meaning in this Paper	Not Equivalent To	Measurement Implication
Trustworthiness Perceptions	Judgments that a specified trustee has relevant ability or competence, benevolence, integrity, reliability, and commitment.	Trust itself or actual reliance.	Measure dimensions separately and specify trustee and task or domain.

Propensity to Trust	A relatively general trustor tendency to extend trust before specific evidence is available.	Project-specific trust.	Measure as a control or antecedent, especially at project entry.
Trust	Directional willingness to accept vulnerability to a trustee based on positive expectations in a specified domain and time.	Confidence without risk, liking, cooperation, or favorable outcomes.	State trustor, trustee, domain, level, and project phase.
Trusting Intention	Readiness to rely, disclose, delegate, or accept exposure if an opportunity arises.	Completed trusting action.	Use intention items only when behavior cannot be observed; do not label them behavior.
Trusting Behavior	Observable acceptance of vulnerability, such as disclosing sensitive information, relying on commitments, sharing discretion, or surfacing bad news.	Trustworthiness belief or forced compliance.	Use behavioral records, event coding, decision logs, and counterpart reports.
Collaboration	Joint governance and adaptation of materially interdependent work across organizational boundaries.	Trust, partnering label, communication frequency, or project success.	Measure shared decisions, joint problem solving, reciprocal transparency, and adaptation independently of trust.
Psychological Safety	Shared belief that speaking up, questioning, admitting error, or requesting help will not trigger interpersonal punishment.	Commercial trust, competence trust, or general team harmony.	Measure at team level and connect to voice and error-reporting behavior.

Distrust	Active negative expectations and concern that a trustee may be harmful, opportunistic, unreliable, or unfair.	Simply the absence of trust.	Allow trust and distrust to coexist across domains; measure both when warranted.
Performance Outcome	A distal result such as cost, schedule, safety, quality, productivity, innovation, satisfaction, or continuity.	Trust or evidence that trust caused the result.	Model mediating behaviors and alternative explanations rather than using outcome as a trust item.

Note. *The distinctions synthesize [Mayer et al. \(1995\)](#), [Rousseau et al. \(1998\)](#), [Edmondson \(1999\)](#), [Fulmer and Gelfand \(2012\)](#), [Lau and Rowlinson \(2009\)](#), and recent construction measurement work ([Wu et al., 2026](#)).*

4 Antecedents: What Creates the Conditions for Trust?

Construction research has identified numerous trust factors, but their theoretical role is often unclear. This review groups antecedents according to the evidence they provide or the vulnerability they manage. The categories are interdependent: trustworthy conduct is easier to demonstrate when governance is fair, reliable commitments are easier to keep when planning systems are integrated, and benevolence is harder to believe when the organization routinely withholds payment or shifts uncontrollable risk. Antecedents should therefore be understood as interacting systems that shape expectations rather than independent checklist items.

4.1 Trustee Qualities and Trustor Characteristics

The first antecedent set concerns the perceived qualities of the trustee. Ability or competence is domain-specific: design expertise, field execution, cost forecasting, safety leadership, and commercial administration represent different capabilities. Reliability concerns consistency between commitments and action; integrity concerns adherence to principles; benevolence concerns whether the trustee considers the trustor's legitimate interests; and commitment concerns the willingness and capacity to remain engaged under pressure. Construction studies repeatedly identify competence, timely

performance, honesty, reliable payment, responsiveness, and commitment as important signals ([Khalfan et al., 2007](#); [Chow et al., 2012](#); [Manu et al., 2015](#); [Zuppa et al., 2016](#); [Issa and Olbina, 2018](#); [Wu et al., 2026](#)).

Trustors also differ. Prior experience, organizational role, risk tolerance, professional identity, and propensity to trust influence how the same signal is interpreted. Commercial personnel protecting margin may require different evidence than field personnel relying on a safe handoff. Senior leaders may trust the governance system while field participants experience repeated local breaches. A project-wide trust climate should therefore not be assumed to represent all participants or relationships.

4.2 **Prior Ties, Reputation, and Continuity**

Prior ties and reputation reduce uncertainty at project formation by providing evidence about competence, communication, and commitment ([Gulati, 1995](#)). [Buvik and Rolfesen \(2015\)](#) show how prior ties can accelerate trust development in construction project teams, while repeated relationships can preserve tacit knowledge and relational expectations across projects.

Continuity is not unconditionally beneficial. Prior relationships can carry grievances, inappropriate routines, status hierarchies, or overconfidence. What matters is the evidence that history provides, whether continuity resides in key individuals or only corporate names, and whether current experience confirms earlier expectations. Prior ties should therefore be treated as an accelerator or prior belief, not as trust itself or a guarantee of future reliability.

4.3 **Institutional and Contractual Governance**

Formal governance can create initial confidence by defining roles, information rights, payment obligations, decision procedures, dispute processes, and remedies ([Gad et al., 2016](#)). Contracts and relational governance can therefore operate as complements rather than substitutes ([Poppo and Zenger, 2002](#); [Cao and Lumineau, 2015](#); [Lumineau, 2017](#)). [Zhang et al. \(2020\)](#), for example, found that contract complexity can strengthen trust through perceived safeguards, particularly when bilateral investments signal commitment.

The effect depends on enactment. Reciprocal and predictable controls can protect parties from opportunism and support trust, while unilateral risk transfer, punitive notice regimes, delayed payment, excessive monitoring, or selective enforcement can communicate distrust and produce defensiveness ([Das and Teng, 1998](#); [Badenfelt, 2010](#); [Koolwijk et al., 2022](#)). Collaborative commercial mechanisms such as open-book accounting, shared contingency, transparent fees, and joint change governance similarly create trust only when participants perceive them as fair and reciprocal. The relevant mechanism is not the presence of the contractual tool but whether its design and use make vulnerability legitimate and manageable.

4.4 **Organizing Processes and Information Environments**

Trust develops through work, not only through workshops. Early involvement, co-location, integrated planning, shared risk registers, common data environments, reliable forecasting, rapid issue resolution, and cross-organizational decision forums provide repeated opportunities to observe ability, integrity, and commitment. Successful handoffs, constraint removal, reliable commitments, and joint adaptation provide evidence that can reinforce trust; inaccessible, manipulated, or chronically late information can produce the opposite effect ([Laan et al., 2011a](#); [Engebø et al., 2022](#); [Moradi and Sormunen, 2025](#); [Tulokas et al., 2026](#)).

The timing and consequence of information sharing matter. Reporting an emerging delay, uncertain estimate, design concern, or quality defect before its consequences are known exposes the reporter to blame or commercial disadvantage. A constructive response provides evidence supporting future trust; a punitive response teaches participants to delay or sanitize future disclosure. Because the model is recursive, information sharing can therefore occupy different causal positions over time: earlier disclosure and response provide evidence that shapes trust, while subsequent disclosure can represent trusting behavior enabled by that trust.

4.5 **Leadership, Fairness, Identity, and Psychological Safety**

Leaders shape trust through allocation decisions, responses to bad news, consistency between words and actions, and use of authority. Difficult events are especially diagnostic: how leaders allocate unforeseen costs, respond to mistakes, and apply agreed rules provides stronger evidence of integrity and benevolence than collaborative slogans or charters.

Procedural and distributive fairness are particularly important when participants are asked to accept vulnerability. Participants must perceive decision processes as legitimate, voice as possible, and burdens and benefits as non-opportunistically allocated. Shared identity, respectful challenge, and psychological safety can further support candor, knowledge sharing, and responsible experimentation ([Clegg et al., 2002](#); [Lloyd-Walker et al., 2014](#); [Galvin et al., 2021](#)). A healthy one-team culture, however, must preserve legitimate commercial and professional differences rather than suppress dissent.

4.6 Context, Task, and Power

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Table 2 Antecedent Systems and the Trust Evidence they Provide

Antecedent System	Illustrative Mechanisms in Construction	Trust Evidence or Protection Supplied	Primary Level or Phase
Trustee Qualities and Trustor Characteristics	Competence, reliability, integrity, benevolence, commitment, propensity to trust, risk tolerance, professional role.	Evidence that the trustee can and will perform appropriately; baseline willingness to engage.	Interpersonal and interorganizational; strongest at entry and early calibration.
Relational History and Reputation	Prior ties, references, market reputation,	Reduces uncertainty and supplies prior	All levels; initialization and

	repeated teams, known key people, lessons from prior projects.	behavioral evidence; may carry positive or negative expectations.	cross-project carryover.
Institutional and Contractual Governance	Role clarity, reciprocal safeguards, payment rules, information rights, dispute process, open books, shared contingency, risk and reward alignment.	Makes vulnerability more predictable and legitimate; can signal fairness or, if coercive, distrust.	Institutional or system and interorganizational; front end and commercial pressure points.
Organizing Processes and Information Environment	Early involvement, co-location, integrated planning, common data, forecasting, joint risk registers, rapid issue resolution, reliable handoffs.	Creates observable episodes of competence, transparency, commitment-keeping, and joint adaptation.	Interpersonal and interorganizational; repeated throughout delivery.
Leadership, Culture, and Psychological Safety	Visible leadership, fair decisions, no-blame responses, voice, respectful challenge, boundary spanners, shared identity, rituals.	Signals benevolence and integrity; lowers interpersonal cost of candor and experimentation.	Team and interpersonal with cross-level effects; especially during strain and learning.
Context, Task, and Power	Uncertainty, interdependence, time pressure, supply-chain tier, national institutions, dependence, personnel turnover.	Shapes the necessity, risk, interpretation, and durability of trust; may convert compliance into apparent trust.	Boundary condition across all phases and levels.

Note. *Antecedents do not create trust automatically. They provide evidence, safeguards, or interpretive conditions from which trustors form and revise expectations.*

5 Trust Development: A Recursive, Event-Driven Life Cycle

The language of trust-building can imply that trust accumulates steadily when a checklist of practices is installed. Cross-level process theory instead treats trust development as an evolving interaction among actors and levels ([Schilke and Cook, 2013](#)). The literature instead supports a recursive and path-dependent process. Trust develops through interpretations of consequential events, and the same project can contain positive and negative spirals simultaneously. The stages below describe dominant tasks, not a deterministic sequence.

5.1 Initialization: Provisional Trust Before Direct Evidence

At project entry, participants must act before a shared history exists. Initial trust is therefore based on institutional safeguards, role expectations, professional credentials, reputation, selection processes, prior ties, and the apparent fairness of the commercial arrangement. This is sometimes described as swift trust or system-based confidence ([Meyerson et al., 1996](#); [McKnight et al., 1998](#)). It is provisional rather than shallow in the sense of being unimportant: without enough initial confidence, parties withhold information, overprotect positions, and never create the interactions from which richer evidence could emerge.

Collaborative procurement can strengthen initialization by selecting people and firms for capability and relational fit, clarifying shared goals, defining joint governance, and creating reciprocal safeguards. Yet a formal collaborative label can also create unrealistic expectations. If participants assume that trust is already present because a partnering charter or alliance contract exists, early contradictions may be experienced as betrayal rather than ordinary calibration.

5.2 Early Calibration: Small Events with Disproportionate Influence

The first exchanges test whether initial expectations were justified. Timely payment, accurate information, response to an early design issue, fulfillment of a modest promise, and treatment of the first mistake are diagnostic because participants have little other evidence. Early behavior can therefore create positive or negative path dependence. A credible response to bad news demonstrates integrity and benevolence; an evasive response encourages defensive attribution. Trust is calibrated not only by whether an outcome was favorable but by how the other party behaved under uncertainty.

Early calibration also reveals whether formal governance is real. Shared decision rights that disappear under pressure, open-book commitments that operate only in one direction, or leaders who override agreed processes communicate that collaborative structures are symbolic. Conversely, consistent use of agreed forums and fair application of rules converts institutional confidence into organizational and interpersonal evidence.

5.3 Reciprocal Reinforcement and Deeper Reliance

When openness is met with constructive action, the perceived risk of further openness falls. More information is shared, commitments become less hedged, and parties invest in joint problem solving. Successful reliance produces a positive feedback loop: trust enables behavior that generates evidence for more trust ([Ring and Van de Ven, 1994](#); [Laan et al., 2011a](#); [Swärd, 2016](#)). Negative spirals follow the same logic. Withholding prompts monitoring; monitoring signals distrust; parties protect themselves; and protection confirms expectations of opportunism.

Repeated interaction can deepen trust from calculation toward knowledge and affect, but the process is uneven. Reliability may become routinized in planning while commercial trust remains fragile. Personal identification may develop among field leaders while corporate systems remain adversarial. The project should therefore be understood as a portfolio of trust relationships rather than one homogeneous state.

Routinization reduces the transaction cost of collaboration. Parties no longer need to renegotiate every small interface because expectations and routines are known. Shared language, informal problem-solving channels, and broader discretion can accelerate work. Yet routinization also creates the risk of complacency. Familiarity should reduce unnecessary protection without eliminating professional verification, independent judgment, or challenge.

5.4 Strain, Breach, Repair, and Erosion

Trust is most visible when it is tested. Schedule pressure, cost growth, design failure, safety events, personnel changes, or perceived unfairness can expose inconsistency among collaborative commitments. A breach occurs when one party interprets another's conduct as violating a positive expectation. The effect depends on the importance of the domain, prior trust, attribution of intent, speed of acknowledgment, and adequacy of

response. High prior trust can provide resilience by encouraging a benign interpretation, but it can also magnify disappointment when the breach contradicts a strong identity claim.

Repair requires more than reassurance. Research on organizational trust repair emphasizes acknowledgment, credible explanation, apology where appropriate, restitution, revised safeguards, and repeated trustworthy action ([Kim et al., 2004](#); [Gillespie and Dietz, 2009](#)). In construction, this may mean correcting payment, revisiting risk allocation, replacing an underperforming leader, making data auditable, or changing decision rights. Repair that addresses only the interpersonal relationship will fail when the cause is structural; adding control alone will fail when the cause is perceived disrespect or bad faith.

If breach is denied or followed by blame, hidden information, and unilateral control, trust can erode into active distrust. Parties may continue to perform because the contract compels them, but discretionary assistance, early disclosure, and joint adaptation decline. This distinction explains why a project can remain contractually coordinated while losing the relational capacity to solve emerging problems well.

5.5 Cross-Project Carryover and Reset

Trust can outlive the temporary project through people, organizational reputation, routines, and repeated commercial relationships. Continuity shortens initialization because parties begin with evidence and shared operating practices. It may also increase the attainable level of integration by allowing teams to devote less effort to proving basic reliability and more to innovation and learning. Consistent with this view, [Ummadisetti \(2026\)](#) frames retained relationships as relational capital within a multi-project logic, rather than as a soft residue of prior work.

Carryover is selective. Personnel turnover can sever interpersonal trust even when firms remain; a corporate policy change can undermine a trusted project team's autonomy; and success in one context may not transfer to a different task or risk profile. The practical objective is therefore not to preserve trust uncritically, but to preserve valid evidence, routines, and relationships while recalibrating them to the new project.

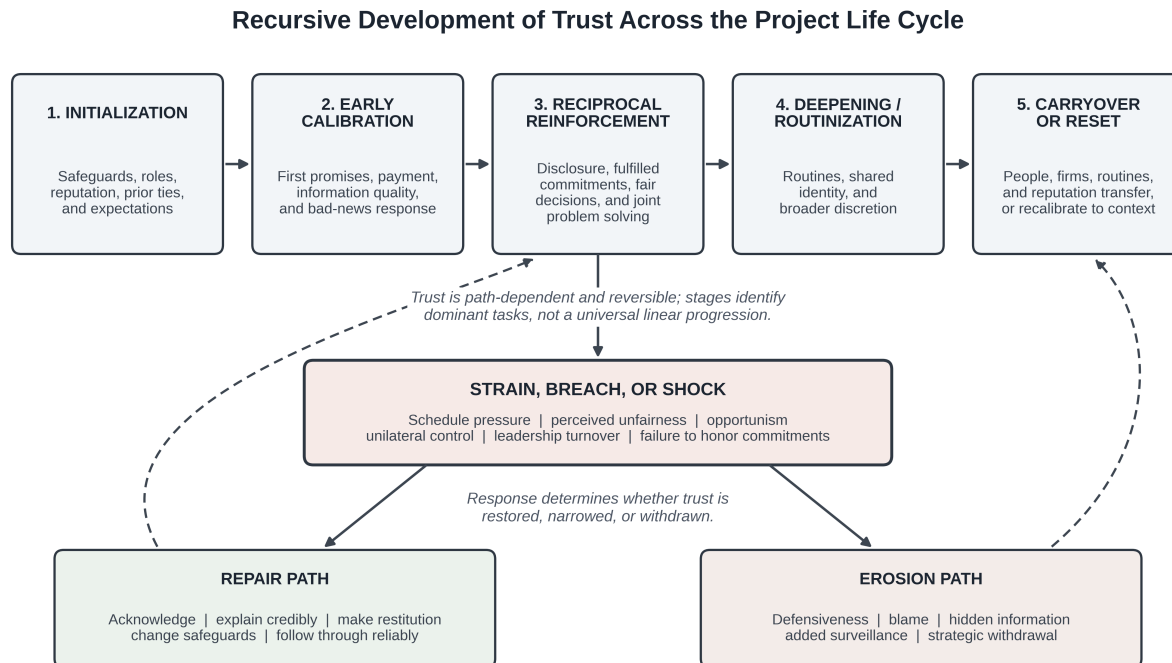


Figure 1 *Recursive Development of Trust Across the Project Life Cycle*

Note. Developed by the authors from the integrative synthesis. The stages describe dominant trust tasks rather than a universal linear progression.

Table 3 *Trust-development stages, diagnostic events, and management tasks*

Stage	Dominant Basis or Question	Diagnostic Events	Management Task
Initialization	Can this person, firm, and project system be relied upon enough to begin?	Selection, contracting, risk workshop, role appointment, first data exchange, prior reputation.	Create reciprocal safeguards, role clarity, credible leadership, and realistic expectations.
Early Calibration	Do early actions confirm the promises and structures?	First payment, first missed commitment, first design conflict, first disclosure of bad news, first use of escalation.	Respond consistently and fairly; make early commitments visible and achievable.
Reciprocal Reinforcement	Does reliance produce constructive response and repeated	Joint planning, constraint removal, cross-firm resource	Create frequent low-to-moderate-risk opportunities for

	commitment-keeping?	support, transparent forecasting, repeated handoffs.	reciprocal reliability and learning.
Deepening or Routinization	Can broader discretion be shared without constant protection?	Delegated decisions, informal issue resolution, experimentation, open cost and schedule conversations, one-team routines.	Institutionalize practices without letting familiarity replace scrutiny or professional challenge.
Strain or Breach	Was a positive expectation violated, by whom, in which domain, and with what intent?	Cost overrun, delayed payment, safety event, unilateral rule change, hidden information, leadership turnover.	Diagnose structural and relational causes; avoid premature blame and blanket withdrawal.
Repair or Erosion	Is the response credible enough to restore willingness to accept vulnerability?	Acknowledgment, explanation, restitution, revised safeguard, apology, personnel or process change, repeated follow-through.	Match repair to cause; monitor behavior while preventing surveillance from becoming retaliation.
Carryover or Reset	Which evidence, people, routines, and expectations should transfer to the next project?	Repeat procurement, team retention, lessons learned, new context, changed scope or governance.	Preserve relational capital while explicitly recalibrating task, risk, and institutional conditions.

6 Performance Pathways: What Trust Changes People to Do

Trust cannot pour concrete, resolve a clash, install equipment, or recover a schedule. Its performance effect must be mediated by behavior. This is more than a philosophical point. Without proximal mechanisms, favorable project outcomes can be used circularly

as evidence of trust, and alternative explanations such as capability, scope, market conditions, or technology remain unexamined. The literature supports seven pathways through which trust can influence production and governance.

6.1 Information and Knowledge Sharing

Trust reduces the perceived danger of sharing information that could be misunderstood or used opportunistically. Parties are more willing to disclose uncertainty, cost drivers, emerging delay, constructability knowledge, and tacit experience when they expect fair treatment. This is especially important in complex projects where the most valuable knowledge is distributed and cannot be transferred through formal documents alone. [Li et al. \(2024\)](#) find that trust asymmetry harms project performance and that tacit knowledge sharing is an important mediator, reinforcing the need to study distribution rather than only average trust.

The pathway depends on information quality and reciprocity. High disclosure from a dependent party combined with low transparency from a dominant party is not mutual trust. Shared digital systems do not solve the problem by themselves; they can make data visible while leaving interpretation, incentives, and decision rights fragmented. Trust changes whether people provide candid, timely, decision-relevant information and whether recipients use it fairly.

6.2 Voice and Early Issue Surfacing

Trust and psychological safety make it more likely that participants will raise hazards, quality concerns, design uncertainty, unrealistic commitments, and mistakes before consequences escalate. Early reporting reduces the time and cost of correction and can improve safety and quality. The operative behavior is not a favorable survey response but speaking up when silence is safer for the individual. Leaders' responses to such moments determine whether the pathway continues.

Voice is particularly vulnerable to hierarchy and commercial exposure. A subcontractor may recognize a problem but fear that disclosure will trigger backcharges; a craft worker may fear blame; a designer may avoid admitting uncertainty under schedule pressure. Trust lowers these costs only when governance and culture protect the speaker in practice.

6.3 Joint Problem Solving and Adaptation

Complex construction requires adaptation because contracts and plans cannot anticipate every interface. Trust allows parties to enter joint problem solving without first resolving every question of blame or entitlement. They can pool knowledge, test alternatives, reallocate resources while retaining legitimate records and accountability. This is the behavioral core of collaborative delivery: vulnerability is accepted so that interdependent work can be governed around the project outcome rather than each firm's isolated position.

Adaptation is not the absence of conflict. Constructive task conflict can improve decisions when participants trust one another's competence and motives. Relational conflict and defensive attribution are more likely when trust is low. The performance benefit arises from faster and better adaptation, not from harmony as an end in itself.

6.4 Reliable Commitments and Workflow

Construction production depends on networks of promises. A trade commits to complete work, provide access, release design information, or supply a resource so another party can proceed. Trust increases willingness to make and rely on commitments, reducing protective buffers, duplicated checks, and schedule hedging. Repeated reliability also improves coordination because parties can plan around promises rather than only around formal milestones.

Reliance should remain calibrated. Blind acceptance of optimistic commitments creates fragility. High-trust planning systems still require transparent constraints, evidence-based forecasting, and rapid learning from variance. Trust makes reliable coordination possible; it does not make verification obsolete.

6.5 Lower Defensive Monitoring, Opportunism, and Transaction cost

When parties expect fair and competent conduct, they can spend less time protecting against every possible adverse action. Management effort can shift from notices, duplicative documentation, claim positioning, and surveillance toward delivery. Interorganizational research links trust to lower negotiation and monitoring costs, while construction alliance studies show how trust and relational governance can constrain opportunism ([Dyer and Chu, 2003](#); [Laan et al., 2011b](#); [Galvin et al., 2021](#)).

The pathway is conditional rather than absolute. Some control remains necessary because trust is bounded and domain-specific. The objective is intelligent assurance: controls that create shared visibility and reciprocal protection without communicating that opportunism is assumed. Formal governance may be reduced, retained, or strengthened depending on risk, but it should be designed to support learning and accountability rather than strategic weaponization.

6.6 **Learning, Innovation, and Discretionary Effort**

Trust supports learning when participants can expose incomplete ideas, admit uncertainty, and experiment without disproportionate blame. It also makes knowledge integration more likely because firms are willing to share expertise beyond contractual minimums. No-blame alliance cultures have been linked to innovation precisely because they protect responsible experimentation while preserving collective accountability ([Lloyd-Walker et al., 2014](#)).

Discretionary effort is another consequence. Parties may help across scope boundaries, mentor others, or allocate scarce resources to the project when they expect reciprocity and fair recognition. Such effort cannot be demanded indefinitely; if repeatedly appropriated by a dominant party, it becomes evidence of exploitation and trust declines.

6.7 **Constructive Conflict Handling and Repair**

Trust changes how ambiguous events are interpreted. Parties with a history of reliable conduct are more likely to seek explanation before attributing opportunism, creating space for direct resolution. They can separate disagreement over the task from judgment of the relationship and use escalation processes without treating escalation itself as betrayal. This can reduce claim escalation and preserve the capacity to work together after conflict.

The pathway is not a reason to suppress contractual rights or legitimate dissent. Durable trust depends on fair processes for surfacing and resolving disagreement. Projects that use one-team language to discourage documentation or challenge may produce hidden conflict rather than collaboration.

Table 4 *Proximal pathways connecting trust to project performance*

Pathway	Observable Trusting Behavior	Likely Distal Outcomes	Important Caution
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Information and Knowledge Sharing	Disclose uncertainty, cost drivers, tacit knowledge, design constraints, and emerging variance.	Better decisions, fewer surprises, improved constructability, productivity, and forecasting.	Visibility may be coerced or one-sided; measure reciprocity, quality, and use of information.
Voice and Early Issue Surfacing	Raise safety, quality, schedule, and design concerns; admit error; request help.	Earlier correction, reduced rework, improved safety and learning.	Psychological safety and commercial protection are distinct but interacting conditions.
Joint Problem Solving and Adaptation	Share discretion, combine expertise, test alternatives, reallocate resources, decide across firm boundaries.	Faster recovery, improved innovation, reduced delay and interface failure.	Harmony is not required; constructive disagreement and accountability remain necessary.
Reliable Commitments and Workflow	Make credible promises, rely on handoffs, release buffers, communicate variance promptly.	More stable flow, shorter duration, less waiting and duplicated checking.	Overreliance on optimistic commitments can create fragility; verification remains necessary.
Lower Defensive Monitoring and Opportunism	Use shared assurance rather than claim positioning, redundant oversight, or information hoarding.	Lower transaction cost, fewer claims, more management attention on production.	Controls can complement trust; reducing all control is neither necessary nor safe.
Learning, Innovation, and Discretionary Effort	Share unfinished ideas, experiment responsibly, mentor across firms, help beyond minimum scope.	Innovation, continuous improvement, retention, satisfaction, and program learning.	Discretionary effort can be exploited; fairness and recognition sustain the pathway.
Constructive Conflict Handling and Repair	Seek explanation, use fair escalation, acknowledge breach, make restitution,	Reduced dispute escalation, faster resolution, relationship continuity.	One-team rhetoric must not suppress rights, dissent, or legitimate

restore safeguards.

documentation.

Note. *Distal outcomes should be modeled through these or comparable proximal behaviors. A simple trust-to-performance correlation cannot establish which pathway operated.*

7 An Integrative Model of Trust in Collaborative Construction

[Figure 2](#) integrates the review. Antecedent systems provide evidence and protection from which trustors form a directional, domain-specific trust state at institutional, interorganizational, and interpersonal levels. Trust changes the willingness to accept vulnerability. That willingness is expressed in trusting behaviors, which activate proximal pathways and influence distal outcomes. Events and outcomes then feed back to recalibrate trust. Boundary conditions affect every link.

The model differs from common input-output frameworks in four respects. First, it inserts trusting behavior between trust and performance. Second, it allows trust to exist at multiple levels and to be asymmetric. Third, it treats development as recursive and reversible. Fourth, it includes control, power, distrust, and overtrust rather than assuming that all formal governance is antagonistic and all trust is beneficial.

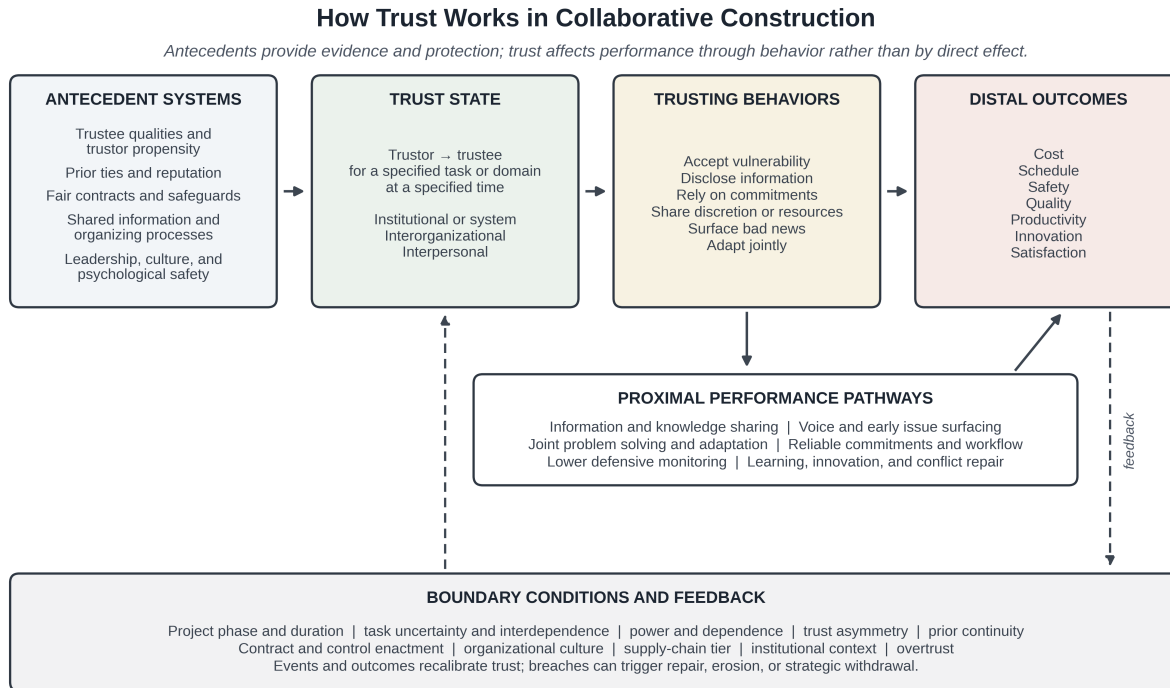


Figure 2 Integrative model of how trust works in collaborative construction

Note. Developed by the authors. Trust is positioned as a directional state that changes behavior; outcomes and events recursively recalibrate trust.

The review supports the following propositions for future testing. They are stated at a level that can guide empirical design without claiming that the integrative review has statistically tested them.

P1. Trustworthiness perceptions affect trust only when they are relevant to the specified task, trustee, level, and vulnerability; global trust measures will therefore predict behavior less accurately than referent- and domain-specific measures.

P2. Reciprocal and fairly enacted contractual safeguards will strengthen initial institutional and interorganizational trust, whereas unilateral or punitive enactment will increase distrust even when contractual completeness is high.

P3. Early diagnostic events will have a disproportionately large effect on trust trajectories because they calibrate provisional expectations before a substantial relational history exists.

P4. Repeated cycles of disclosure, constructive response, and fulfilled commitment will produce positive trust spirals; withholding, surveillance, and defensive attribution will produce negative spirals.

P5. Prior ties and team continuity will accelerate trust formation, but their effect will be moderated by current performance and may become negative when prior grievances or overconfidence are carried forward.

P6. Trust will influence distal project outcomes primarily through proximal behaviors, especially knowledge sharing, voice, reliable commitments, joint adaptation, reduced defensive monitoring, and learning.

P7. Alignment among institutional, interorganizational, and interpersonal trust will produce more durable trusting behavior than high trust at only one level.

P8. Trust asymmetry within important dyads and interfaces will reduce reciprocity, tacit knowledge sharing, and performance even when the project-wide mean level of trust is high.

P9. Power imbalance will weaken the positive relationship between reported trust and voluntary trusting behavior because compliance and strategic deference may be misclassified as trust.

P10. The relationship between trust and performance will become curvilinear where very high, poorly calibrated trust reduces challenge, assurance, or vigilance and increases overreliance.

8 Boundary Conditions and the Dark Side of Trust

Trust does not have a uniformly positive relationship with performance. Its value depends on the vulnerability involved, consequence of failure, verifiability, task uncertainty, interdependence, power, project phase, and distribution of trust across relationships. Projects therefore require appropriately calibrated trust rather than an undifferentiated maximum.

Overtrust can reduce vigilance, suppress challenge, and create excessive dependence on familiar actors. Strong relational identity may contribute to groupthink, discourage escalation, or cause participants to overlook deteriorating performance. High trust may be efficient for a mature and repeatedly demonstrated handoff but inappropriate for an untested safety-critical decision. Trust should therefore remain domain-specific and proportional to evidence and consequence.

Trust asymmetry can similarly limit performance even when average project trust appears high. [Li et al. \(2024\)](#) show that asymmetric trust is negatively associated with construction project performance and that tacit knowledge sharing helps explain this relationship. Project-level averages can consequently conceal critical interfaces where one party discloses while another monitors, or one relies while another remains defensive.

Power and dependence complicate both trust and its measurement. A weaker party may disclose information, comply with decisions, or report confidence because alternatives are limited rather than because vulnerability is voluntarily accepted. [Koolwijk et al. \(2022\)](#) demonstrate how the exercise of power through changing financial rules can undermine long-term commitment. Researchers and practitioners should therefore distinguish voluntary trusting behavior from constrained compliance and consider voice, alternatives, reciprocity, and perceived fairness when interpreting apparent trust.

Formal control is also contingent in meaning and effect. Controls can provide predictable boundaries, shared evidence, and reciprocal protection, or they can become instruments of surveillance and blame. The same mechanism may change meaning over time: open-book accounting, for example, can begin as assurance, become a collaborative decision resource, and revert to surveillance during conflict. The relevant boundary condition is therefore not simply the amount of control, but how control is designed, enacted, and interpreted ([Vukomanović et al., 2021](#)).

Project phase and organizational level further condition trust. Formation relies heavily on reputation and safeguards; design places greater emphasis on competence, disclosure, and joint interpretation; construction emphasizes reliable commitments, handoffs, and issue response; and closeout may reactivate commercial tensions around defects, contingency, and final payment. Trust can also vary across supply-chain tiers: an aligned owner-contractor relationship may coexist with adversarial subcontracting or late payment. A single end-of-project or project-wide trust measure can therefore obscure both temporal change and important relational differences.

Together, these conditions reinforce the central argument of the paper: trust is valuable when it is specific, reciprocal, voluntary, evidence-based, and appropriately calibrated to the vulnerability involved. Trust should neither replace governance nor eliminate verification. Its contribution depends on matching reliance to the people, organizations, systems, tasks, and risks for which sufficient evidence exists.

9 Measurement and Research Agenda

Construction trust research has progressed from exploratory factor lists toward validated inventories and multidimensional measurement, building on broader recommendations to distinguish trust constructs, referents, and measures carefully ([McEvily and Tortoriello, 2011](#)). [Cheung et al. \(2011\)](#) operationalized system-, cognition-, and affect-based trust; [Zuppa et al. \(2016\)](#) and [Issa and Olbina \(2018\)](#) developed context-specific models; and [Wu et al. \(2026\)](#) validate a four-factor measurement model incorporating integrity, competency, benevolence, and commitment. These advances are valuable, but stronger causal and temporal inferences require changes in how studies specify the construct and collect evidence.

Every trust measure should identify five elements: the trustor, trustee, level, domain, and time. “I trust the project team” is less diagnostic than “I am willing to rely on the mechanical contractor’s weekly production commitment during the current construction phase” or “I can disclose an emerging cost risk to the owner without expecting opportunistic use”. Referent specificity improves construct validity and allows dyadic asymmetry to be calculated.

Trustworthiness beliefs, trust, trusting intention, and trusting behavior should be measured separately. Survey items about honesty or competence assess trustworthiness; items about willingness to accept vulnerability assess trust; records of disclosure, delegation, reliance, voice, or resource sharing assess behavior. Collaboration and performance should remain separate constructs. This design prevents tautological mediation models in which the same favorable perceptions appear on both sides of the causal path.

Longitudinal designs are necessary. Repeated measures at formation, early design, contracting, mobilization, peak construction, commissioning, and closeout can reveal direction, lag, breach, and repair. Event-based sampling around consequential episodes may be even more informative than calendar interviews. Cross-lagged panels, latent growth models, dynamic structural equation models, and qualitative process tracing can test whether trust precedes behavior, behavior builds trust, or both occur recursively.

The dyad and interface should become primary units of analysis. Owner-contractor averages are useful but insufficient in projects with many firms and work packages. Social-network analysis can map who relies on whom, where trust is asymmetric, and whether central boundary spanners connect otherwise fragmented groups. Multilevel models can examine how institutional governance and project climate shape dyadic trust and how dyadic patterns aggregate into team behavior.

Behavioral and archival indicators should complement self-report. Examples include response time to emerging issues, frequency and timing of voluntary disclosures, reliability of commitments, escalation patterns, cross-firm resource transfers, rework reporting, data-access logs, payment performance, and changes in monitoring intensity. These indicators do not reveal motives automatically, but triangulation can test whether reported trust is enacted.

Performance studies should model mediators and alternatives. A statistically significant trust-performance association does not show whether knowledge sharing, voice, coordination, lower transaction cost, or innovation operated. Recent meta-analytic evidence indicates that trust is positively related to project performance and that contextual and methodological moderators matter ([Gao et al., 2025](#); [Zheng et al., 2025](#)). The next step is mechanism-specific testing using objective outcomes and time ordering.

Comparative research should move beyond collaborative-versus-traditional labels. Projects with the same delivery form can enact governance differently, while local trust can emerge under conventional contracts. Studies should measure commercial safeguards, decision rights, information reciprocity, leadership behavior, trust states, and trusting behavior independently. This will allow researchers to test which bundles create trust, for which vulnerabilities, and at what cost.

Table 5 *Priority research agenda for trust in collaborative construction*

Research Question or Gap	Recommended Design	Unit and Timing	Key Measures or Contribution
How do different trust levels align or conflict?	Multilevel longitudinal survey plus interviews.	Institution, firm, team, dyad; repeated by project phase.	Institutional confidence, interorganizational trust, interpersonal trust, cross-level alignment.

How does trust develop and reverse?	Event-based process tracing and repeated measures.	Consequential episodes from front end through closeout.	Initial expectations, diagnostic events, attributions, breach, repair actions, trajectory.
Which antecedent bundles work under which conditions?	Comparative cases, configurational analysis, and field experiments where feasible.	Projects and interfaces varying in uncertainty, power, and delivery architecture.	Contracts, fairness, prior ties, leadership, information practices, culture, and context.
Through which pathways does trust affect performance?	Longitudinal mediation models linked to objective project records.	Dyad or interface and work package before project-level aggregation.	Trust -> disclosure, voice, reliability, adaptation -> cost, schedule, safety, quality, productivity.
What does trust asymmetry do?	Dyadic data, polynomial regression, response-surface analysis, and network methods.	Matched counterpart ratings at critical interfaces.	Directional trust, disagreement, reciprocity, tacit knowledge sharing, power.
When do control and trust complement or undermine one another?	Longitudinal mixed methods around control changes and commercial pressure.	Contract formation, forecast reviews, change and dispute episodes.	Safeguard versus restriction perceptions, monitoring intensity, fairness, trusting behavior.
When does high trust become overtrust?	Nonlinear models, critical-incident analysis, and comparison of high-reliance failures.	Safety-critical and innovation decisions.	Challenge behavior, verification, groupthink, error detection, concentration of dependence.
How does trust carry across projects and supply-chain tiers?	Program-level panel studies and multi-tier network analysis.	Repeated projects; owner-prime-subcontractor-supplier links.	Personnel continuity, firm reputation, routines, payment, relational capital, reset effects.

10 Practical Implications: Designing, Testing, and Protecting Trust

The practical implication is not that leaders should ask teams to trust more. Trust follows from the quality of the vulnerability they are asked to accept and the evidence available about those who control it. Project leaders should therefore begin by mapping critical dependencies: who must rely on whom, for what decision or handoff, what can go wrong, and which information or discretion is exposed. This converts trust from a cultural slogan into a governance design question.

At project formation, owners should create reciprocal safeguards and fair commercial architecture before demanding openness. Roles, decision rights, payment, risk, contingency, data access, change governance, and escalation should be understandable and consistently applied. Selection should consider capability and relational conduct at the level of the actual people assigned not only corporate reputation. Prior ties can be used as evidence but should not replace current due diligence.

The early project should be designed as a calibration period. Leaders can create attainable commitments, transparent data exchanges, joint planning tasks, and moderate-risk decisions that allow participants to demonstrate reliability. The first response to delay, error, or bad news should be treated as a trust-defining event. Constructive inquiry, rapid support, and fair accountability will encourage future disclosure; punitive surprise will teach the team to hide.

Trust should be monitored through behavior rather than only sentiment. Are issues raised earlier? Are commitments more reliable? Is information reciprocal? Are decisions genuinely joint? Is monitoring becoming more or less defensive? Are weaker parties able to challenge stronger ones? Short pulse measures can support this inquiry, but they should be paired with decision logs, commitment data, payment performance, risk registers, and structured discussion of critical events.

When strain occurs, leaders should diagnose whether the cause is capability, integrity, benevolence, structure, or context. The remedy must fit the cause. Training cannot repair perceived bad faith; an apology cannot correct a structurally unfair risk allocation; added

surveillance cannot restore psychological safety. Credible repair combines acknowledgment, explanation, restitution, changed safeguards or roles, and repeated follow-through.

Owners with repeating work should treat validated trust and functioning routines as program assets. Continuity can preserve evidence, reduce startup friction, and support deeper learning, but each new project should explicitly recalibrate scope, risk, people, and governance. The goal is not permanent unquestioning trust. It is a disciplined capacity to rely appropriately, detect change early, challenge when justified, and repair the relationship when possible.

11 Conclusion

Trust matters in collaborative construction because interdependent parties must accept vulnerability that contracts, controls, and verification cannot eliminate. Yet trust is not a generic success factor or a synonym for collaboration. It is a directional, domain-specific willingness to rely, grounded in judgments of trustworthiness and institutional protection, expressed through trusting behavior, and repeatedly recalibrated by events.

The review shows that trust develops through initialization, calibration, reciprocal reinforcement, routinization, strain, repair or erosion, and possible cross-project carryover. Its effect on performance is indirect. Trust changes whether participants share knowledge, speak up, rely on commitments, adapt jointly, reduce defensive monitoring, learn, innovate, and resolve conflict constructively. These behaviors can influence cost, schedule, safety, quality, productivity, satisfaction, and continuity, but the pathways depend on power, asymmetry, phase, uncertainty, control enactment, and calibration.

For scholarship, the priority is to specify who trusts whom, for what vulnerability, at what level and time, then separate trust from behavior and outcomes. For practice, the priority is to design fair safeguards, create repeated evidence of reliability, respond well to bad news, monitor reciprocity, and repair breaches credibly. Trust is neither a substitute for governance nor a product of exhortation. It is a governed and evolving capacity for appropriate reliance across organizational boundaries.

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