

Diffusion and Durability of Integrated Project Delivery Practices: An Innovation Diffusion Perspective

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Abstract

Question: How does Integrated Project Delivery (IPD) diffuse within organizations beyond individual projects, and how can “value” definition be used to interpret the durability of IPD-driven changes (sustaining IPD adoption within organizations)?

Purpose: This paper empirically examines IPD diffusion within organizations through the lens of Diffusion of Innovation (DOI) theory and introduces value, drawing on Target Value Delivery (TVD), as an interpretive lens for adoption durability. It aims to explore why IPD diffuses unevenly across organizational practices and why some changes are sustained while others are not.

Research Method: A mixed-methods sequential design was employed, combining a survey of 25 Canadian construction professionals with IPD experience and seven semi-structured interviews. Data were analyzed using descriptive statistics and thematic analysis, with DOI as the primary lens and TVD concepts used interpretively to examine differences in adoption depth and durability.

Findings: IPD diffuses unevenly across organizational practices, with strong influence observed in culture, communication, learning, tools, and organizational structure, and limited diffusion in decision-making, risk management, procurement, and performance measurement. Interpreted through a TVD lens, the findings suggest that adoption may exhibit greater durability when collaboration is anchored in explicit value definition and target-based steering, which enhance observability and reduce uncertainty.

Limitations: The study is limited by a small, region specific sample and reliance on self-reported data. In addition, TVD was used interpretatively rather than measured

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directly, limiting causal claims regarding its implementation.

Implications: The study contributes to research on DOI by highlighting value governance as a potentially important factor in how organizations transform their practices as a result of their participation in IPD projects. For practice, it suggests that durable IPD implementation may benefit from explicit value definition and target-based decision-making, while for owners and policymakers it highlights the need to align governance frameworks with value-driven delivery.

Value for authors: This paper provides an empirically grounded framework for understanding IPD diffusion, interpreted through a value-governance lens. By integrating IPD, DOI, and TVD, it offers a foundation for future research and practical guidance aimed at achieving durable transformation in project-based organizations.

Keywords: Integrated project delivery, IPD, Diffusion of Innovation Theory, DOI Target Value Delivery, TVD, Value, Lean

Paper type: Full paper

Introduction

Integrated Project Delivery (IPD) has emerged as a collaborative project delivery approach with the potential to fundamentally reshape prevailing norms in the construction industry by replacing adversarial, transaction-based relationships with collaboration, transparency, and shared accountability (Ashcraft, 2012; Biloshapka and Osievsky, 2018; Ballard, 2020). Through the use of multi-party agreements, liability waivers, risk and profit sharing as well as early involvement of key participants, IPD seeks to integrate people, organizations, and systems, thereby creating conditions for improved working relationships and superior project outcomes (Kent & Becerik-Gerber, 2010).

Practitioner accounts report that participation in IPD projects often triggers changes in how individuals and organizations operate beyond the boundaries of a single project. These changes may include the adoption of new planning tools, collaborative practices, decision-making routines, and revised approaches to working with partners, some of which are subsequently transferred to non-IPD projects (Cheng & Johnson, 2016; Poirier et al., 2022). Such observations suggest that IPD functions not merely as a project-specific delivery method, but gets transferred as an innovation capable of influencing practices and norms at the organizational level.

While IPD is increasingly piloted and selectively implemented, evidence of its durable institutionalization across organizations and project portfolios remains uneven. In many cases, IPD practices diffuse in fragmented or superficial forms, losing coherence once removed from the contractual and governance structures that initially enabled them. This raises a critical question: under what conditions does IPD diffuse as a stable, value-creating organizational innovation rather than as a fragile collection of tools and behaviors?

This study suggests that sustainable diffusion of IPD may be influenced not only by exposure to collaborative practices, but also by the presence of explicit value definition, shared governance mechanisms, and decision frameworks that anchor learning and collaboration over time. By drawing on Diffusion of Innovation (DOI) theory and Suchman's multistage model of institutional construction (1995), this paper examines IPD diffusion beyond individual projects and explores how value-based governance, particularly through TVD, Lean planning and decision-making systems, shapes whether IPD-driven changes persist, evolve, or regress once formal IPD contracts are no longer in place. Finally, this

paper does not claim to measure durability directly, but interprets observed diffusion patterns through a value-governance lens to propose conditions under which durability is more likely.

Background

IPD's transformative characteristics align with the core attributes of innovation, as defined by Everett Rogers (ROGERS et al., 2008) (eg. relative advantage, compatibility, complexity, trialability, and observability), that influence the adoption and diffusion of innovations within industries (Elghaish et al., 2021). These transformative characteristics foster collaboration, risk-sharing, and efficiency by integrating owners, designers, and contractors early in the project lifecycle.

According to Drenta and Lobontiu (2016), relative Advantage in the DOI, is defined as the degree to which an innovation is perceived as better than the existing standard. Compared to traditional project delivery methods, IPD is often perceived as offering advantages such as improved collaboration and coordination (Choi et al., 2019).

Compatibility refers to the degree to which an innovation aligns with existing values, past experiences, and needs of adopters. IPD is compatible with the increasing demand for collaborative and lean construction practices. It aligns well with digital transformation trends (e.g., Building Information Modeling (BIM)) and with industry shifts towards integrated and agile workflows (Elghaish et al., 2021; Rankohi et al., 2022).

Complexity refers to the perceived difficulty of understanding and using an innovation. The complexity of IPD can be a barrier to adoption, as it requires a cultural shift from traditional contract-driven roles to trust-based partnerships (Hall et al., 2022). Legal and contractual frameworks (e.g., multi-party agreements) also increase initial complexity. However, organizations that invest in training and knowledge-sharing can overcome these challenges (Hamzeh et al., 2019).

Trialability refers to the extent to which an innovation can be experimented with on a limited basis. Partial adoption (e.g., employing collaborative principles without full contractual IPD) allows firms to gradually experiment with aspects like early contractor involvement (ECI), co-location of teams, and shared risk-reward mechanisms before full-scale adoption (Koolwijk et al., 2020).

Observability refers to the extent to which the outcomes of an innovation are visible to others, influencing how quickly practices are noticed, discussed, and potentially adopted beyond initial implementation contexts (Drenta and Lobontiu, 2016).

The Concept of Value to Enable Diffusion Durability

Investigating IPD through the lens of the DOI theory addresses different but complementary dimensions of change in project-based industries. IPD primarily operates at the level of project organizing and contracting: it creates the relational, legal, and governance conditions necessary for collaboration across organizational boundaries. By aligning commercial interests, promoting early involvement, and enabling shared risk and reward, IPD removes many of the structural and behavioral barriers that traditionally inhibit cooperation among owners, designers, and constructors. However, while IPD enables collaboration, it does not in itself explain how collaborative practices spread across projects, organizations, or sectors, nor does it guarantee that collaborative behaviors will persist once the novelty of a delivery model fades. DOI theory provides this missing

explanatory layer by focusing on how new ideas, practices, and organizational arrangements are adopted, adapted, and normalized over time. From a DOI perspective, IPD is not simply a contractual choice but an organizational innovation whose adoption depends on perceived relative advantage, compatibility with existing institutional logics, trialability, and observability. DOI helps explain why IPD often emerges first in pilot projects or among highly motivated innovators, why adoption tends to be uneven across organizations, and why diffusion may stall at the early-adoption stage. Yet, while DOI explains *how* and *why* adoption occurs, it offers limited insight into what contributes to the durability of adoption in the context of temporary, multi-actor project organizations where value, authority, and risk are continuously renegotiated.

Target Value Delivery

Value governance in IPD projects is operationalized through Target Value Delivery (TVD), which integrates Target Value Design (TVDg) and Target Value Production (TVP) into a single, continuous system spanning the full project lifecycle [Eq.(1)] (Tommelein and Ballard, 2016; Vlietland et al., 2016). As illustrated in Figure 1, value is first defined, tested, and validated during pre-validation and validation phases, where design and procurement decisions are steered by explicit value and cost targets rather than downstream cost control. These value commitments (Ziminia et al., 2012) are then carried forward into construction through Target Value Production (Ballard, 2020), where production strategies, means and methods, and execution decisions are continuously aligned with the original value objectives. In this sense, TVD conceptually positions value as something that can be defined early and carried forward through design and delivery.

$$\text{TVD} = \text{TVDg} + \text{TVP} \quad \text{Eq.(1)}$$

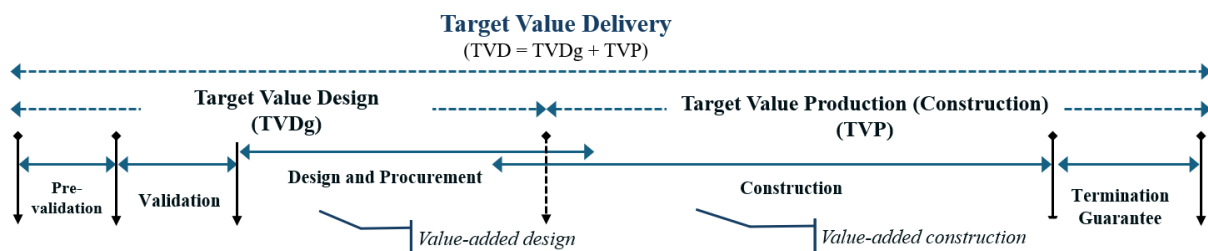


Figure 1. Target Value Delivery in IPD Project Lifecycle (by the authors)

From a governance perspective, TVD offers a way to interpret a critical durability gap in IPD diffusion by framing collaboration as an operational decision system rather than solely a relational aspiration (Hinterhuber, 2008; Giménez et al., 2022). By translating collaborative intent into shared and measurable value targets, and by using those targets to steer both design and production decisions, TVD embeds collaboration into day-to-day technical, financial, and behavioral decision-making (Mossman et al., 2010; Lichtig, 2010; Malvik et al., 2021). This reduces reliance on goodwill (Gomes Miron et al, 2015), leadership charisma, or contractual intent alone (Kenig et al., 2010), and instead provides a structured mechanism that may help stabilize collaborative practices under cost, schedule, and risk pressure. As a result, TVD allows collaborative innovation (Orihuela et al., 2015; Nanda et al., 2017) to persist beyond individual moments of alignment, making IPD practices more repeatable, defensible, and transferable across projects and organizational contexts.

Value Governance as Institutional Work

While IPD provides contractual and organizational conditions that enable collaboration, and DOI theory helps explain how such arrangements are adopted and transferred, prior research suggests that neither perspective alone fully explains how collaborative practices become durable within project-based industries. In response to this limitation, the literature increasingly points to the role of value governance in stabilizing collaboration over time. Drawing on Suchman's (1995) multistage model of institutional construction, value governance, and particularly concepts associated with TVD, can be used as an interpretive lens to understand how collaborative delivery practices may move from project-level experimentation toward more repeatable organizational routines.

Within Suchman's framework, institutionalization begins with the recognition, cognition, and naming of recurrent problems (Hall et al., 2019). In the construction context, persistent challenges such as cost overruns, late design changes, and adversarial behavior have traditionally been framed as technical, contractual, or managerial failures. The TVD literature reframes these challenges as problems of value definition and alignment, shifting attention from downstream cost control to upstream clarification of value objectives and constraints. This reframing constitutes an important form of institutional work, as it challenges existing delivery logics and legitimizes alternative collaborative responses grounded in shared value priorities.

As responses to recurring coordination and value-related challenges are categorized and compared, value-governance mechanisms provide a common logic for differentiating collaborative delivery approaches. Practices such as Conditions of Satisfaction, Choosing by Advantages, and target-based steering enable comparison based on value outcomes rather than positional authority or contractual power (Orihuela et al., 2015; Rybkowski et al., 2022). As summarized in Table 1, these practices can be conceptually aligned with stages of institutional construction by supporting problem framing, response comparison, and theorization, thereby linking collaboration to observable performance logic rather than isolated project success.

Building on this perspective, prior research suggests that TVD can also support diffusion and institutionalization by embedding collaboration within value-based decision routines that extend across design and production. By making value explicit, shared, and continuously steerable, TVD is argued to reduce reliance on individual champions, informal trust, or exceptional project conditions, and instead support greater consistency and repeatability of collaborative practices over time. In this framing, TVD complements IPD and DOI by providing a value-governance logic that helps explain how collaborative delivery approaches may transition from initial adoption toward more durable organizational practice.

Table 1: IPD/TVD Mechanisms of Institutional Construction

Suchman Stage	Institutional Question	IPD /TVD Practices	Role of value governance (TVD)
Problem Generation	Is there a problem requiring response?	Early team formation, business case discussions	Reveals misalignment between expected value and traditional delivery logic
Problem Cognition	Is the problem novel or recurrent?	Early cost modeling, preliminary alignment workshops	Reframes recurrent project failures as value-definition problems
Problem Naming	Can the problem be named and stabilized?	Conditions of Satisfaction (CoS)	Explicitly names value objectives and constraints, stabilizing expectations
Response Categorization	Are there multiple visible responses?	IPD vs. traditional delivery, Lean practices, Big Room	Differentiates responses based on ability to define and steer value
Response Comparison	Which response works better, and why?	Choosing by Advantages (CBA), trade-off analysis	Enables comparison based on value outcomes rather than position or authority
Theorization	Can the response be generalized and justified?	Lean principles, TVD logic, repeatable decision routines	Links collaboration to observable value performance and causal explanation
Diffusion	Does the response spread across contexts?	Big Room, shared dashboards, target cost tracking	Increases observability, reduces uncertainty, accelerates adoption
New Institutions	Does the response become taken-for-granted?	Value-based steering, collaborative governance norms	Embeds value-driven decision-making as standard institutional practice

This value-governed interpretation of institutionalization is illustrated in Figure 2, which adapts Suchman's multistage model to a collaborative delivery context by highlighting where IPD- and TVD-related practices may contribute to diffusion and stabilization and showing how value governance may shape the durability of collaborative delivery beyond individual projects. Figure 2 illustrates how the diffusion and stabilization of IPD practices can be interpreted as an institutional construction process in which value

governance plays a supporting role. Building on Suchman's (1995) multistage model, the figure highlights where IPD mechanisms contribute to early problem recognition and experimentation, and where TVD-related practices may support later stages of theorization, diffusion, and institutionalization. In this adaptation, value governance is positioned not as a replacement for contractual or relational mechanisms, but as a complementary logic that helps translate collaborative intent into shared decision routines and observable performance criteria. By explicitly linking value definition, target-based steering, and decision transparency to stages of institutional construction, the figure provides a conceptual bridge between IPD adoption, DOI-based diffusion, and the durability of collaborative practices over time.

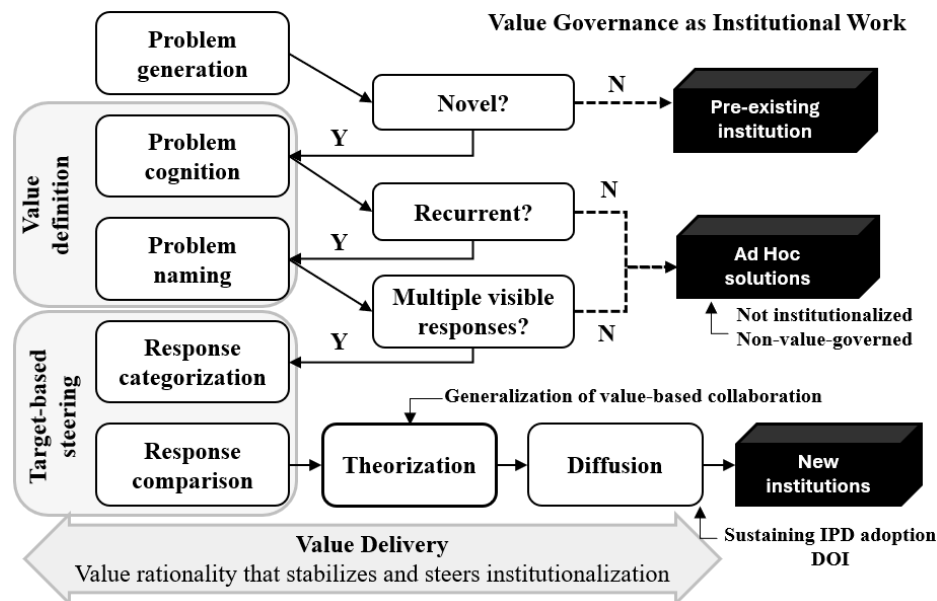


Figure 2. Authors' adaptation of Suchman's (1995) multistage model of institutional construction to a value-governed IPD context, illustrating where IPD- and TVD-related practices may contribute to adoption, diffusion, and the durability of collaborative delivery beyond individual projects.

The Conceptual Triad of IPD-DOI-TVD

As discussed above, the triad composed of IPD-DOI and TVD can be articulated to support a division of theoretical labor⁶. IPD explains collaboration through a reshaping of contractual and organizational relationships; DOI explains adoption by illuminating the social and institutional dynamics (Mahalingam and Levitt, 2007) through which new delivery models spread; and TVD explains durability of innovation by anchoring collaboration in value-based governance mechanisms that persist beyond individual efforts or exceptional projects. Without IPD, collaboration lacks a legitimate organizational foundation. Without DOI, adoption remains anecdotal and poorly understood. Without TVD, collaboration remains superficial and project-specific (Lampel, 2011). Durability may be better understood when collaborative intent is translated into shared value targets that

⁶ In this paper, "division of theoretical labor" reflects a Smithian logic of complementary specialization rather than a Marxian critique of power or exploitation.

structure decision-making across the project lifecycle and serves to anchor organizational orientations.

This theoretical triad also helps explain persistent patterns observed in practice. Many organizations report improvements in communication and teamwork when adopting IPD, yet struggle to institutionalize changes in decision authority, risk management, or cost control. From the triad perspective, such outcomes are not failures of IPD per se, but indicators of incomplete innovation systems in which enabling structures exist, adoption has begun, but value governance remains underdeveloped. TVD thus provides a useful lens for interpreting how IPD may move from an innovation that is simply “adopted” towards more institutionalized practice by converting collaboration into an explicit performance logic that can be observed, evaluated, and reproduced.

By positioning IPD, DOI, and TVD as interdependent frameworks, this triadic perspective contributes to the theoretical understanding of innovation in construction and other project-based industries. It suggests that durable transformation does not arise from contractual reform, behavioral change, or production methods alone, but from their alignment within a coherent system that enables collaboration, supports adoption, and stabilizes value creation over time.

Methodology

This study aimed to examine how IPD diffuses across organizational practices and how the durability of these changes can be interpreted through Innovation Diffusion Theory and value-based governance perspectives. To achieve this, the research methodology builds on professionals’ experience of IPD from organizations that have implemented this project delivery method. By employing a mixed-methods sequential design, the study combined survey data collection with follow-up interviews to examine how IPD practices diffuse across organizational contexts and how participants describe the depth and persistence of these changes. The mixed-methods sequential design is especially suitable for capturing both broad patterns and in-depth insights. In particular, it combines quantitative and qualitative approaches sequentially, allowing the researcher to integrate different perspectives, ensuring comprehensive data collection, and applying triangulation to enhance the validity and depth of findings (McKim, 2017).

Data Collection and Analysis

Survey Phase

The first phase involved a structured survey designed to capture insights into the organizational impacts of IPD implementation. It consisted of three sections: (1) demographics, including background information about participants, their IPD experience, and their organizations; (2) IPD adoption and participation, designed to assess the extent to which organizations are involved in IPD projects and their experience with the methodology; and (3) impact on organizational practices, focusing on how IPD influences different organizational practices.

Of the total 78 responses received, only 25 fit the criterion of having experience with IPD and, therefore, were valid for analysis. This sample included participants from various sectors within the construction industry, spanning multiple organizational types and operational scales, as illustrated in Table 2. This demographic distribution highlights a

diverse and balanced sample of individuals and organizations involved in IPD and braces the conclusions that can be drawn from their responses.

Table 2: Demographic Information

Demographic Aspect	Statistics
IPD Experience	Moderate Familiarity (40%), High Familiarity (24%), Extensive Experience (36%)
Sectors	Engineering/Design Firms (29%), Subcontractors (24%), General Contractors (18%), Owners/Clients (18%), Facilitating/Consulting Firms (11%)
Geographic Presence	Regional (59%), National (29%), International (12%)
Project Types	Commercial (52%), Institutional (48%), Infrastructure (36%), Residential (36%), Industrial (36%)

In terms of data analysis, Descriptive statistical analysis was performed to comprehend the survey data. Descriptive statistics summarize data in an organized manner by describing the relationship between variables in a sample or population (Kaur et al., 2018). This included calculating frequencies and distributions on key variables relating to IPD's impact on organizational practices. The responses to open-ended questions were analyzed qualitatively to contextualize the results from the quantitative survey.

Interview Phase

Following the survey, seven semi-structured follow-up interviews were conducted with survey respondents. These interviews allowed further investigation into the responses of the preliminary survey and explored nuances in how IPD practices are perceived to diffuse to organizational level (Creswell & Clark, 2017). The interview participants were sampled from the survey respondents who opted in for follow-up interviews, stating their willingness to provide more detailed insights about their experience with IPD.

An overview of the interviewees' profiles is given in Table 3, highlighting their roles as top management individuals, their organizations' distribution across three different Canadian provinces, and the diversity of their organizational types.

The interviews focused on themes identified in the survey and the possible effect of IPD on their organizational practices. The interview transcripts were subjected to thematic analysis, following a systematic coding, categorizing, and theme development process (Clarke & Braun, 2017). In the first step, each transcript was reviewed to identify recurring ideas, terms, and concepts, resulting in identifying a set of initial codes that were then going through a process of eliminating duplicates, merging, and refining. In the second step, related codes were grouped into categories reflecting broader patterns. Finally, categories were synthesized into overarching themes, presenting the study's main findings. Emerging themes were cross-checked against the survey findings to ensure coherence and reliability.

Validation

Triangulation served as the primary validation strategy for this research. This was through the triangulation of data between the survey and interviews, enhancing the

validity of the conclusions drawn (Heale & Forbes, 2013). Moreover, the diversity of participants in terms of roles, types of organizations, and geographical locations further supports the credibility and transferability of the findings. It ensures that the conclusions apply to various contexts within the construction industry.

Table 3: The Interview Participants' Profiles

Interview ID	Role	Sector	Organization Type	Location
FI01	Project Executive	Private	General Contractor	Ontario
FI02	Director	Private	Consulting Firm	British Columbia
FI03	Managing Principal	Private	Architecture Practice	Ontario
FI04	Director	Private	Municipality	Ontario
FI05	Director of IPD	Private	Electrical Contractor	Alberta
FI06	Lean Integration Leader	Private	General Contractor	British Columbia
FI07	President & Senior Coach	Private	Multidisciplinary Firm	Alberta

Results

This study examines how IPD diffuses as an innovation within organizations, exploring its manifestation across various organizational practices. The results, drawn from both surveys and interviews, are analyzed through the lens of DOI, illuminating systematic changes within organizational structures and processes. The survey results provide a high-level overview, highlighting the areas where IPD has more pronounced effects and establishing the relative prominence of its influence. On the other hand, the interviews offer deeper insights, presenting detailed characterizations of IPD's influence in specific areas. Together, these methods provide a detailed perspective on IPD's diffusion across organizational practices.

Patterns of Influence

The findings highlight that IPD's degree of influence differs significantly across organizational aspects, as illustrated in Table 4. Among the ten organizational practices examined, organizational culture, tools and practices, communication, learning and knowledge transfer, and organizational structure were the most influenced by IPD.

Interestingly, 92% of survey respondents observed positive changes in organizational culture, citing improved collaboration, increased job satisfaction, and a culture of continuous improvement. Enhanced communication strategies were reported by 52% of respondents, characterized by more open and flexible communication strategies that leverage new technologies such as SharePoint, MS Teams, and online applications to break boundaries and facilitate inclusive communication. Similarly, 52% reported enhanced knowledge transfer, particularly in facilitating organizational learning opportunities and innovation. Additionally, 61% noted a moderate to significant positive impact of Lean tools, and 50% indicated adoption of these tools at the organizational levels. Lastly, 44% of survey

respondents indicated changes in organizational structure, mainly through changes in the management structure and style, where the teams are more empowered to fulfill their duties, and the management style shifts from traditional project management rules to a stewardship-focused and collaborative oversight approach.

Table 4: Survey Findings on IPD's Influence on Organizational Practices

Organizational Practices	Observed Changes	No Changes Observed	Uncertain or Not Applicable
Organizational Culture	92%	4%	4%
Tools and Practices	61%	39%	0%
Communication	52%	32%	16%
Learning and Knowledge Transfer	52%	24%	24%
Organizational Structure	44%	52%	4%
Resource Allocation	36%	40%	24%
Procurement and Supply Chain	28%	40%	32%
Performance Measurement	28%	44%	28%
Decision-Making Processes	24%	56%	20%
Risk Management	16%	52%	32%

In contrast, several aspects of organizational practices demonstrated limited influence from IPD. For example, 56% observed no changes in the indecision-making process, highlighting the persistence of centralized decision-making frameworks. Similarly, 40% reported no changes in procurement practices, attributing this to standardization challenges and individual projects' unique demands. Resource allocation practices also showed limited transformation, with 40% indicating no change and others pointing to only sporadic adjustments, such as increased staffing for IPD projects. Finally, risk management practices and performance measurement and evaluation remained unchanged for 52% and 44% of survey respondents, respectively.

Influence Dynamics

Building on the quantitative foundation provided by the survey, the diffusion of IPD practices were further explored through seven follow-up interviews with top management practitioners heavily involved in IPD projects. These interviews enriched the survey findings by highlighting the diffusion of IPD strategies and their practical application within organizations.

By drawing on the principles of DOI, the interviews reveal how IPD influences and is influenced by organizational practices, suggesting a reciprocal influence between organizations and IPD practices. This reciprocal relationship highlights that while organizations change because of the IPD experience, they can contribute to the evolution of IPD practices as well. For example, some organizations have adopted the "Big Room" co-location practice to fit their project teams and coordination needs best. These

adaptations, in turn, feed back into refining and optimizing its use on IPD projects. In addition, the interviews revealed that organizations with established Lean principles naturally align with IPD, making their involvement in this delivery model more seamless. This pre-existing alignment often enables them to implement IPD without significant structural or cultural changes. For example, companies that had used Lean tools, such as Choosing By Advantages and structured onboarding, also found the practices complementary to the IPD workflows. As a result, these companies integrated IPD as an extension of their operational strategies without significant adjustments.

Understanding this dynamic interplay between the innovation characteristics of IPD and organizational practices serves as a foundation for the following sections that focus on key organizational aspects such as Organizational Culture, Tools and Practices, Communication and Knowledge Transfer, and Management Structure, where IPD's impact has been particularly transformative. These areas highlight the varied facets of IPD's integration into organizational dynamics, showcasing how they exemplify the successful diffusion of this innovative project delivery approach within border organizational practices.

Organizational Culture

One of the most significant influences of IPD at the organizational level is the cultural shift toward a stronger emphasis on collaboration, transparency, and a value-driven approach. This influence consistently came out during the interviews and the survey alike, where the latter indicated an 92% observational level of culture change. A key aspect of this shift is the increased emphasis on transparency. Participants noted that open communication and knowledge sharing, supported by shared accountability, have inspired internal changes that enhance organizational transparency and provide greater insight into holistic operations. Moreover, some of the practices utilized in IPD projects, such as sprint planning and plus-deltas, have helped the organizations move into a team-oriented culture, embedding these collaborative behaviors into everyday workflows.

These cultural changes extend beyond divisions directly involved in IPD projects to drive broader organizational transformations, where IPD amplifies collaboration and transparency across divisions. This reported diffusion across organizational boundaries indicates that IPD is associated with broader cultural change beyond individual projects.

Another observed change is the tendency to prioritize collaboration as an organizational strategy, both in project selection and in practices applied across different contract types. This influence for IPD aligns with the view that the commitment to fostering a collaborative culture in IPD projects is crucial in supporting better project outcomes.

The findings revealed that organizations increasingly prioritize projects that offer collaboration opportunities over traditional competitive contracts that often involve adversarial work environments. One participant noted, *"No matter what the contract type, we want to work collaboratively and that has been the biggest outcome, regardless of a team member's been on an IPD project or not is we have created this culture Collaboration, and that has been super successful across our organization."* This highlights how the diffusion of collaborative norms through IPD becomes ingrained within the organizational fabric over time.

Collaborative readiness and relationship-building over traditional technical evaluations in partner selection is another key shift. Organizations experiencing IPD

increasingly prioritize partners who demonstrate collaborative behaviors, reflecting a strategic move toward fostering alignment and trust. This shift extends beyond selection criteria to reshape relationships with subcontractors and stakeholders, transitioning from hierarchical dynamics to more collaborative partnerships. The IPD experience influences and deepens mutual understanding among the stakeholders, aligns processes, and develops stronger and more durable relationships.

Tools and Practices

The integration of IPD and Lean tools into organizational practices represents another aspect of the influence of IPD. Participants mentioned adopting these tools in non-IPD projects after experiencing their effectiveness on IPD projects. Survey results show that 61% of respondents observed integrating specific IPD and Lean tools into their organizations' operations, further amplifying their value beyond IPD-specific contexts. Participants shared examples of these tools. For instance, "Choosing by Advantages" was one effective decision-making tool learned through IPD that has subsequently been used at both the project and organizational levels. One participant mentioned that their organization's decision-making processes now depend on decision matrix templates developed through IPD projects. Similarly, practices such as pull plans, plus-deltas, lookahead schedules, sprint planning, and dashboarding that are intensively used at IPD projects have been incorporated into the organizational tool kit to enhance collaboration and effectiveness. The use of "Conditions of Satisfaction" was also highlighted as a best practice for setting clear and measurable goals, extending beyond IPD projects to other contract types.

In terms of practices, broader IPD practices and strategies such as the "Big Room" have influenced how organizations manage team dynamics and collaboration on non-IPD projects to foster collaboration and promote team-culture. In addition, a tendency to invest in pre-project alignment as an organizational strategy is another face for IPD influence. Participants indicate that their organizations start investing time and effort upfront to ensure that shared values, alignment, and collaborative culture are established among project participants, a factor viewed as critical to successful outcomes in IPD projects. This demonstrates a shift toward more intensive and collaborative pre-project planning.

This broader adoption reflects how experimentation with tools in IPD projects "trialability" is associated with their subsequent use at the organizational level.

Knowledge Transfer and Communication

Organizational knowledge transfer and communication strategies represent another important influence area for IPD. IPD experiences promote cross-disciplinary information exchange, openness to external knowledge sharing, and the use of more interactive communication methods. This observation is supported by survey data, with 52% indicating changes in communication patterns inside their firms as a result of IPD.

Participants highlighted how IPD practices promote cross-disciplinary knowledge transfer by breaking down professional silos and fostering direct, frequent interactions that enhance team dynamics and support more effective problem-solving across organizational levels. For example, it has become common for team members to reach out to other disciplines for immediate feedback, mirroring the collaborative dynamics of the Big Room. In addition to the internal improvements, IPD strengthens external knowledge sharing with

partners. Participants noted that IPD projects have made organizations more sophisticated in sharing information and best practices.

The influence of IPD extends to communication tools, with organizations limiting formal and traditional email-based methods toward real-time, interactive platforms. These tools have streamlined communication, helping foster collaboration, and supported team cohesion. While this shift is not exclusive to IPD influence, these tools' practical application within IPD projects validated their effectiveness and promoted their broader adoption.

Organizational Structure

Experiencing IPD and understanding its principles better by being part of IPD projects has led to few, yet important, changes in organizational structures and management practices according to results. These changes are primarily about driving organizations to align more closely with the collaborative and integrated practices seen in IPD projects. These structural adaptations reflect the diffusion of IPD principles, reshaping traditional hierarchies and roles to better suit innovative, collaborative workflows. These findings were corroborated by 44% of survey participants who reported changes in their organizational structure.

Organizations are increasingly replicating the IPD project team structure in their operations. This includes establishing management frameworks consistent with IPD setups where clear roles and hierarchies are defined from senior management to project management to implementation levels. This structural change indicates an acknowledgment of the effectiveness of the management structure in the IPD project that enables effective coordination and collaboration among different management levels.

Alongside structural changes, organizations are implementing IPD-inspired management strategies that improve internal practices. These strategies encompass tools and processes that promote collaboration, decentralize decision-making, and empower project teams. For instance, one participant mentioned introducing new roles, such as project coordinators and project management assistants, to enhance collaboration and the effectiveness of project management.

Additionally, an important shift in management style accompanies these structural and procedural changes. Organizations are moving away from traditional project management roles to stewardship-focused and collaborative oversight approaches. This includes redefining roles from "project manager" to "project leader" to emphasize collective health, integrated processes, and team alignment.

Discussion

IPD Diffusion at Organizational Level

The study's empirical findings suggest that IPD practices diffuse across organizational domains in an uneven and inconsistent manner. As shown in the survey and interview results, IPD appears to diffuse more readily into practice-based and relational domains (e.g., culture, communication, learning, and tool use) than into structurally constrained domains (e.g., procurement, risk management, performance measurement, and formal decision authority). This uneven pattern suggests that adoption and diffusion should be distinguished from durability, defined here as the extent to which IPD-driven changes

persist and remain actionable once the enabling conditions of a specific IPD project are no longer present.

To understand why IPD diffuses unevenly across organizational practices and why some IPD-driven changes persist beyond individual projects while others do not, the findings are examined from two complementary perspectives. The discussion first situates the results in relation to prior IPD research and interprets them through DOI theory to explain patterns of adoption and transfer across organizational domains. It then draws on value-governance perspectives, and particularly concepts associated with TVD, to interpret the conditions under which these changes may exhibit greater durability across projects and organizational contexts.

Interpreted through the lens of DOI theory, stronger diffusion is observed in practice-based and relational domains, including organizational culture, communication, learning and knowledge transfer, and the use of collaborative tools. From a DOI perspective, these domains are characterized by higher perceived compatibility with existing organizational values and routines, greater trialability through project-based experimentation, and higher observability of outcomes, which together facilitate adoption and transfer beyond individual IPD projects.

Consistent with prior IPD studies (Matthews and Howell, 2005; Cheng and Johnson, 2016; Poirier et al., 2022), participants reported that experiences within IPD projects often led to changes in how collaboration, transparency, and learning were approached beyond the immediate project context. These changes were reflected in increased emphasis on open communication, shared problem-solving, and the normalization of collaborative routines across teams. Importantly, these patterns do not imply a complete organizational overhaul. Instead, they focus on selectively spreading practices that offer clear advantages, can be tested in small-scale settings, and show visible benefits to encourage wider adoption.

In contrast, diffusion into structurally constrained domains such as procurement, formal decision-making, risk management, and performance measurement was limited. From a DOI standpoint, these domains are associated with higher perceived complexity and lower trialability, as they are embedded within regulatory requirements, contractual obligations, and formal governance structures that restrict opportunities for experimentation and adaptation. Participants frequently attributed the persistence of these practices to legal and institutional constraints, a finding that aligns with prior research identifying regulatory and contractual frameworks as key barriers to broader IPD adoption (Bhonde et al., 2020; Ma et al., 2023). These results suggest that while IPD enables experimentation within project settings, diffusion into domains governed by formal authority and institutionalized procedures remains more difficult.

While DOI theory helps explain why IPD practices are adopted and transferred unevenly across organizational domains, it offers more limited insight into why some IPD-driven changes persist beyond individual projects while others regress once project-specific enabling conditions are removed. The findings suggest that practices that diffused more strongly across organizations, such as collaborative routines and learning-oriented practices, were often accompanied by more explicit discussions of value, alignment, and shared objectives. In contrast, practices that remained largely unchanged, including procurement, formal decision authority, and risk management, were those where value priorities were less explicit and more tightly embedded within existing contractual and governance structures. This pattern indicates that diffusion alone may be insufficient

to explain persistence, and that the way value is defined, negotiated, and steered over time plays an important role in shaping whether IPD-driven changes endure.

From a value-governance perspective, concepts associated with TVD help interpret this durability gap by highlighting how collaboration can be anchored in shared value definitions and decision routines rather than relying solely on relational alignment or project-specific conditions. Prior research suggests that by making value explicit and continuously steerable, TVD-based practices can reduce reliance on individual champions, trust alone, or exceptional project contexts, thereby supporting the stabilization of collaborative behaviors over time. Interpreted in this way, value governance does not replace IPD or DOI-based explanations of adoption, but complements them by helping explain why certain IPD-related practices appear more likely to persist across projects and organizational contexts.

Drawing on Suchman's (1995) multistage model of institutional construction as a supporting lens, these findings can be understood as reflecting different degrees of institutionalization. Practices supported by explicit value definition and shared decision logic appear better positioned to move beyond ad hoc project responses toward more repeatable organizational routines, while those lacking such governance remain more fragile and project-specific. This interpretation reinforces the distinction identified in this study between adoption and durability, and helps explain why IPD-driven change is often uneven despite positive project-level experiences.

Interpreting Uneven Diffusion Through a TVD Lens

While DOI theory helps explain why IPD practices diffuse unevenly across organizational domains, it provides more limited insight into why certain IPD-driven changes persist beyond individual projects while others remain fragile or regress once project-specific enabling conditions are removed. The empirical findings suggest that practices exhibiting stronger diffusion (such as collaborative routines, learning-oriented behaviors, and the adoption of shared tools) were often accompanied by more explicit discussions of value, alignment, and trade-offs. In contrast, domains that showed limited diffusion, including procurement, formal decision authority, performance measurement, and risk management, were those in which value priorities remained implicit or embedded within existing contractual and governance structures.

Interpreted through a TVD lens, this pattern suggests that durability of IPD-driven change may be influenced by whether collaboration is anchored in explicit, shared value definitions and target-based steering mechanisms rather than relying solely on relational alignment or project-specific governance arrangements. TVD reframes collaboration as a value-governed decision system, where targets, constraints, and trade-offs are made explicit and continuously revisited throughout design and delivery. In doing so, TVD provides a mechanism through which collaborative behaviors may be stabilized under cost, schedule, and risk pressures, reducing dependence on individual champions, informal trust, or exceptional project conditions.

From this perspective, the empirical findings do not suggest that TVD is uniformly implemented at the organizational level, but rather that IPD-driven practices appear more durable when they exhibit TVD-consistent characteristics, such as explicit articulation of value objectives, transparent evaluation of alternatives, and shared decision logic. This interpretation helps explain why IPD diffusion is more pronounced in domains characterized by higher observability and trialability, while remaining limited in

structurally constrained domains where value is less explicit and decision-making authority is more centralized. TVD thus complements DOI by offering an interpretive lens for understanding not only how IPD practices spread, but under what conditions they are more likely to persist and become embedded within organizational routines.

Conclusions

The findings of this study suggest that involvement in IPD projects offers more than an opportunity to improve project-level outcomes; it can act as a catalyst for broader organizational change. Participation in IPD projects is consistently associated with shifts in organizational culture, communication patterns, knowledge exchange, partnership strategies, and day-to-day operational practices. These changes reflect a movement toward greater collaboration, transparency, and openness to cross-organizational learning. At the same time, the impact of IPD is uneven across organizational domains. More structurally constrained domains such as procurement practices, formal decision rights, resource allocation mechanisms, and risk management frameworks often remain largely unchanged, even as collaborative behaviors emerge at the project level.

This uneven pattern of change suggests that IPD diffusion should not be understood as a simple process of adoption or replication. Rather, the diffusion of IPD can be interpreted as an institutional construction process, in which new norms, routines, and meanings are produced, tested, and negotiated through practice. Drawing on Suchman's institutional perspective, the diffusion of IPD can be interpreted not as the achievement of legitimacy alone, but as ongoing institutional work through which actors may attempt to reconstruct how value is defined, decisions are made, and responsibilities are shared in project delivery.

From a DOI standpoint, IPD can be viewed as an innovation agent within the construction industry. Exposure to IPD projects accelerates the uptake of Lean tools, collaborative planning practices, and new ways of working with partners. These experiences can spill over into non-IPD projects, suggesting that IPD may trigger organizational learning and experimentation beyond its formal contractual boundaries. However, DOI also highlights a critical distinction between *local adoption* and *sustained diffusion*. While IPD projects can initiate meaningful change, the extent to which these changes persist depends on whether they are embedded into organizational structures rather than remaining confined to specific projects or teams.

Taken together, the findings can be interpreted through a value-governance lens, where Lean practices such as TVD help explain how collaborative delivery changes might become more durable over time. When value is explicitly defined, collectively negotiated, and continuously governed through shared targets and transparent trade-off rules, collaborative behaviors are reinforced and stabilized. In such contexts, IPD practices are more likely to evolve into repeatable organizational routines rather than isolated project experiences. Conversely, when value remains implicit or subordinate to traditional cost- and risk-transfer logics, collaborative practices tend to dissipate once the IPD project ends.

Importantly, this helps explain why IPD often produces visible cultural and behavioral change while leaving deeper institutional arrangements relatively intact. Collaborative norms may gain traction at the level of interaction and identity, yet struggle to reshape procurement regimes, accountability structures, and formal decision systems. From an institutional construction perspective, this reflects partial rather than complete

reconstruction: new practices are enacted, but the underlying institutional architecture that would sustain them over time remains only weakly altered.

In this sense, the challenge facing IPD is not whether collaboration is desirable, but whether the industry is willing to engage in the institutional work required to reconstruct how value, risk, and decision-making are governed beyond the boundaries of individual projects.

Implications

For researchers, these findings suggest that future IPD studies should move beyond evaluating performance outcomes or adoption rates and instead examine the mechanisms through which collaborative practices are constructed, stabilized, or eroded over time. For practitioners and public owners, the results underscore that sustainable IPD diffusion requires deliberate institutional work focused on value definition, governance alignment, and learning-based decision processes. Without such efforts, IPD risks remaining episodic, capable of catalyzing change within individual projects, but unable to fully reconstitute the institutional foundations of project delivery.

Limitations

This study experienced some limitations, particularly in data collection, data analysis, and sample size. First, the empirical data are geographically concentrated within the Canadian construction context and are based on a relatively small sample of participants, many of whom have extensive experience with IPD. While this focus enables in-depth insight into IPD practice within a coherent institutional setting, it also limits generalizability and introduces the possibility of positive bias. More importantly, the reliance on self-reported perceptions constrains the ability to distinguish between durable institutional change and project-specific adaptations. As a result, the findings should be understood as indicative of ongoing institutional construction rather than definitive evidence of organizational transformation.

Future research should therefore adopt comparative and longitudinal designs to examine how IPD practices evolve across different regulatory environments and over time, particularly as organizations transition between IPD and non-IPD projects. Greater attention is also needed on organizational domains that showed limited responsiveness to IPD, such as procurement, risk allocation, and formal decision authority, where entrenched institutional structures may constrain diffusion. Finally, further investigation into value governance mechanisms, especially the role of Target Value Delivery in stabilizing collaborative decision-making, would deepen understanding of how IPD can move beyond *episodic adoption* toward *sustained institutionalization*.

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