

THE ROLE OF LEAN LEADERSHIP IN ENABLING DATA SHARING ACROSS INDUSTRY-ACADEMIA BOUNDARIES

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ABSTRACT

Access to reliable project data is essential for addressing complex, data-dependent research problems and supporting learning and improvement in Lean project environments. However, industry-academia collaborations that depend on such data often face privacy, security, and approval constraints that restrict information sharing. This paper presents a qualitative descriptive case study of an industry-academia collaboration aimed at enabling access to project documentation for research purposes. The study examines how data access negotiations unfolded over approximately ten months between an academic research team and an industrial projects contractor. Initial attempts to obtain data were hindered by confidentiality requirements, fragmented approval pathways, and organizational silos. Over time, structured communication, staged data-sharing practices, and the involvement of an internal company champion supported coordination and allowed for the progressive expansion of data access. Findings describe how privacy constraints shaped collaborative relationships and formal data-sharing processes, and how trust developed through repeated interaction and demonstrated reliability. Interpreted through a Lean perspective, the study shows how data access can be understood as an information flow process and how internal champions enable coordination and learning. The paper offers empirical insight and practical guidance for data-dependent industry-academia collaboration.

KEYWORDS

Lean construction, industry-academia collaboration, information flow, lean leadership, trust.

INTRODUCTION

Industry-academia collaboration (IAC) refers to partnerships between universities and industry partners, where the aim of this partnership is to foster the connection between academia and practice to reproduce or verify research, and to advance the state of research and innovation (Borgman, 2012). IACs are considered integral for the acceleration of innovation and economic growth through knowledge exchange between academic and commercial domains (Ankrah and Omar, 2015; Golabchi et al., 2024). However, the effectiveness of this approach depends heavily on access to project data.

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Although collaboration between universities and industry is increasingly being widespread throughout many nations, universities are continuously facing challenges in gaining access to data that is required to bridge the gap between research and practice (Ankrah and Omar, 2015). In practice, obtaining project data is often constrained by privacy concerns, information security requirements, and complex internal approval processes (Whyte, 2019). These constraints are reinforced by concerns related to data control and risk exposure, which significantly limits the openness in data sharing across organizations (Borgman, 2012). From a Lean perspective, these barriers are represented as organizational resistance to change that is driven by risk aversion and governance constraints (Canning and Found, 2015).

Access to project data in IAC contexts is an integral starting stage that is crucial for the start of most research projects that aims to innovate the industry partner's practices. As such, the processes through which data is requested, reviewed, approved and shared can be viewed as part of a broader problem system of information, which would be subject to the same challenges of variability, delay and fragmentation that are addressed through Lean principles. Access to project data is usually negotiated between the research and industry partner teams, where these negotiations are mostly treated as preliminary administrative steps, rather than as being part of information workflow design, in which data access would define how and when information moves across organizational boundaries. Therefore, from a Lean perspective data access can be looked at as an information flow process that must be coordinated across organizational boundaries under constraints such as privacy policies and approval requirements.

While prior Lean research has emphasized the importance of collaboration, trust, and leadership in improving project performance (Ballard & Tommelein, 2016; Liker, 2004), limited empirical work has examined how these principles operate when information flow is constrained by the governance requirements of a company, such as data sharing across organizations. This gap reflects the limited understanding of how data access processes are structured and managed in IACs, especially when access to project data is required for research purposes and is affected or limited by organizational constraints. Understanding these processes is important, as they can define how information flow across organizational boundaries can influence coordination and improve efficiency in collaborative environments.

Although concepts such as boundary spanning and knowledge coordination across organization interfaces have been widely studied in organizational and innovation literature (Tushman & Scanlan, 1981; Carlile, 2002), this study builds on these ideas by examining how such roles and processes operate within data-constrained IAC and interpreting them through Lean perspectives. Using a qualitative descriptive case study of a collaboration between an academic research team and an industry partner, the study aims to examine the collaborative process that evolved between the two organizations where these observations were interpreted through a Lean perspective. These observations were based on documented communication exchanges, data request iterations and approval cycles that were thoroughly tracked throughout the collaboration period. This study is guided by the following research questions:

RQ1. From a Lean perspective, how do data access constraints shape collaboration processes in IACs when working on data-dependent research?

RQ2. What role can internal company personnel play in facilitating coordination across organizational boundaries under data access constraints?

RQ3. How does trust evolve over time in response to structured data-sharing practices within an IAC?

THEORETICAL BACKGROUND

Drawing primarily on Lean Construction literature, the paper focuses on Lean principles relevant to collaborative work, trust, and facilitative leadership practices that support coordination and information flow across organizational boundaries. This section outlines the

theoretical concepts that directly inform the Lean perspective used to frame the analysis of the IAC case study examined in this paper.

BARRIERS TO DATA SHARING ACROSS ORGANIZATIONAL BOUNDARIES

Despite shared interests in improvement and innovation, IACs frequently encounter barriers related to data confidentiality, intellectual property protection, information security, and organizational risk aversion (Ankrah and Omar, 2015; Whyte, 2019). These barriers are often reinforced by organizational silos and fragmented governance structures, resulting in unclear approval pathways and prolonged negotiation processes (Dave et al., 2013). Lean implementation research shows that contextual constraints can significantly affect collaboration practices, including communication and information sharing (Koohestani et al., 2020). From a Lean perspective, these barriers directly affect information flow and limit opportunities for learning and continuous improvement.

LEAN PRINCIPLES RELEVANT TO COLLABORATIVE WORK

Reliable information flow is a prerequisite for effective coordination and stable production systems and a core element of collaboration in Lean systems (Koskela, 1992; Love et al., 1999). Therefore, when information is incomplete, unclear, or poorly coordinated across organizational boundaries, uncertainty increases, leading to reactive communication, delays, and inefficiencies in collaborative work (Ballard, 2000). From a Lean perspective, improving the reliability and coordination of information exchanges is therefore central to enabling flow and reducing variability in complex, multi-stakeholder environments (Ballard & Howell, 2003). In addition, Lean research also highlights the importance of clearly defined information handoffs, shared understanding, and coordination mechanisms to support predictable collaboration and learning across organizational interfaces (Koskela et al., 2018; Sacks et al., 2010). Several empirical studies also highlight that in order to encompass principles that shape an organization's social dynamics, Lean must not only be limited to technical tools but should also extend to how people collaborate and learn within production systems (González et al., 2015; Koskela, 2000; Liker, 2004). Socio-technical perspectives further emphasize that effective collaboration depends on conditions that enable shared understanding and coordinated action across organizational boundaries (Abdelmegid et al., 2019). Together, these studies indicate that information readiness can therefore be understood as the degree to which information exchanges support stable and uninterrupted collaborative processes, and that Lean collaboration emerges from the interaction between technical processes and social practices, rather than from the application of tools alone.

FACILITATIVE LEADERSHIP AND THE ROLE OF INTERNAL CHAMPIONS

Lean leadership focuses on enabling conditions for learning and flow rather than directing outcomes through authority (Liker & Convis, 2012; Ballard & Howell, 2003). Leaders act as facilitators who support coordination, remove obstacles, and encourage communication across functional boundaries. Within collaborative settings, internal champions often play a critical role by bridging organizational silos and supporting alignment among diverse stakeholders (Dave et al., 2013). Prior research on Lean project delivery highlights the importance of facilitative leadership roles in enabling collaboration, particularly in integrated project environments (Ballard & Tommelein, 2016). Empirical studies highlight the role and importance of facilitative leadership in enabling Lean adoption across organizational boundaries (Alarcón et al., 2008). However, limited attention has been given to how such leadership roles operate in IAC environments that are constrained by data governance and privacy requirements. Examining the role of internal champions in this context provides an opportunity to extend Lean leadership concepts to data-dependent collaborations. Within this body of work, champions are understood not as individual heroes, but as embedded actors who

help create conditions for learning and alignment. This provides a useful perspective for interpreting the role of internal champions observed in this study.

RESEARCH METHOD

This study adopts a qualitative descriptive case study approach to examine how Lean principles were applied during an IAC focused on enabling access to project data for research purposes. A case study methodology was selected as it allows for an in-depth examination of complex organizational processes within their real-world context (Yin, 2018). This is particularly appropriate when the phenomenon of interest, which in this case is data access, involves dynamic interactions, coordination, and learning across organizations (Bertelsen & Koskela, 2004).

A researcher was working directly with the industry partner to define data requirements, negotiate access, and support the development of acceptable data-sharing practices. This embedded role supported close engagement with internal stakeholders and approval processes, providing direct insight into how decisions were made, concerns were addressed, and coordination occurred across organizational functions. The supporting information collected for the development of this study consisted of interactions that were documented throughout the collaboration period, which included meeting records, email exchanges, data requests, feedback and responses as well as approval-related communications. These records spanned over approximately one year and captured the evolution of the interactions between the research team and the industry partner.

The embedded role of the researcher provided direct access to the interactions and decision-making processes but also introduced potential for interpretive bias. To mitigate this potential bias, the analysis was grounded by documentation of the interaction records. This in turn allowed the interpretations to be linked to traceable evidence rather than solely relying on observations. This information was collected longitudinally as part of the ongoing collaboration rather than being compiled at the end of data access process, which provided a traceable basis and foundation for examining how collaboration practices evolved. Additionally, the longitudinal nature of the data allowed patterns to be identified across various interactions rather than being inferred from isolated events. The collected interaction records were reviewed and organized into three primary categories:

1. Communication patterns which focused on clarity, structure and frequency of exchange,
2. Coordination mechanisms which included approval pathways and decision flows,
3. Facilitative actions taken by internal personnel to support alignment across different functions.

These categories were developed and used to structure the analysis of how collaboration practices evolved throughout the process. The analysis followed an iterative process in which interaction records were examined across different stages of the collaboration to identify recurring patterns and changes. Initial observations were derived directly from the collected interaction records, focusing on how communication exchanges, coordination processes and interactions evolved.

These observed patterns were then interpreted using Lean principles to provide conceptual structure, rather than being predefined or imposed. This approach supports traceability by ensuring that the interpretations presented in the Findings section were grounded with empirical observations while establishing a connection to Lean principles. This approach also guarantees that the study does not establish causal relationships between observed practices and outcomes, but it instead focuses on identifying and interpreting patterns in how collaboration practices evolved over the duration of the data sharing process. Observed changes, such as improvements in communication clarity, were therefore presented as associated developments rather than as

causal effects. Furthermore, preliminary interpretations were reviewed with another research team member, and the representation of the collaboration process was checked with a representative from the industry partner to confirm factual accuracy and consistency within the organizational perspective, strengthening the credibility of the analysis. While additional validation strategies could further strengthen the findings, the longitudinal nature of the observations and the use of documented interaction records provide a consistent basis for identifying Lean principles that recurred in this collaboration process. Future work could be conducted to incorporate additional validation strategies to build on these findings.

CASE CONTEXT

This case study examines a collaboration between a research team based at the University of Alberta (U of A) and a large industrial projects contractor delivering complex, multidisciplinary construction projects in Canada. The company operates in an environment where structural, mechanical, electrical, and process systems are highly interdependent, making early design completeness and coordination essential to successful project delivery. In complex construction projects, design-related issues such as missing information, poor coordination, and late clarifications frequently propagate downstream, leading to disrupted workflows, increased costs, and schedule delays (González et al., 2015), which was one of the challenges faced by the industry-partner. Therefore, the collaboration was initiated to support the development of a system intended to provide a solution to this practical challenge. To achieve this objective, the research project required access to a wide range of project documentation reflecting how design information is produced, coordinated, and revised in practice. As such, this collaboration provided an opportunity to observe how data access negotiations evolved throughout the project and how collaborative practices adapted in response to privacy and security constraints.

While the research objectives were aligned with the company's interest in improving their practices, early efforts to access the required data encountered significant constraints. The absence of clearly defined approval pathways was associated with uncertainty regarding who held decision-making authority over data access and what forms of documentation would be considered acceptable for research use. In addition, organizational policies governing data confidentiality and information security, coupled with complex internal approval workflows, limited the initial flow of information between the U of A and the industry partner. Data requests were subject to review by multiple functions, including project teams, information systems, and compliance-related units, and concerns were raised regarding the sensitivity of project information, potential exposure of proprietary practices, and risks associated with external data use. As a result, early stages of the collaboration were characterized by delays, fragmented communication, and uncertainty regarding what forms of data access would be considered acceptable. This delay went on for several months. A turning point in the collaboration occurred with the involvement of an internal company champion, who acted as a cross-functional facilitator across organizational boundaries. The champion supported alignment among internal stakeholders by clarifying the intent of the research and translating academic objectives into terms that resonated with organizational priorities, such as learning, risk reduction, and continuous improvement. Through this facilitation role, the champion helped establish shared expectations regarding data usage and supported the co-development of acceptable data-sharing practices, including anonymization strategies and staged access to sensitive information. Over time, the collaboration evolved through iterative cycles of clarification, feedback, and adjustment. Initial data-sharing arrangements were conservative and highly constrained but gradually expanded as mutual understanding and trust developed between the research team and the industry partner. This progression unfolded over approximately one year, during which coordination practices became more structured, communication loops shortened, and information flow improved. The temporal evolution of the

collaboration provides a basis for examining how Lean principles influenced the transformation of data privacy constraints into opportunities for learning and trust-building within an IAC.

FINDINGS

The findings describe how data access constraints were encountered, addressed, and progressively transformed over the course of the collaboration. Table 1 presents a structured practice-oriented framework that can inform future IACs. The table provides interpretive mapping that links collaboration behaviors to Lean principles, with the aim of clarifying how the collaboration evolved throughout the duration of the data sharing process under data access constraints. While not prescriptive, the table highlights mechanisms that may serve as a guide to reduce delays associated with data access constraints under similar contexts.

A first mechanism is the early acknowledgment of organization constraints as legitimate rather than seeing them as obstacles that need to be bypassed. In this case study, this helped create a more workable basis for communication by reducing defensiveness and opening space for dialogues between the research team and the industry partner. For other collaborations of similar context, progress may depend less on pressing for immediate access and more on recognizing the concerns that contribute to data access constraints. A second mechanism is the iterative clarification of needs. So rather than beginning with broad or ambiguous requests, collaboration would progress faster and better through repeated clarifications of what data is needed, why it is needed, and most importantly how it will be used. Clarifying the needs in this case study reduced misunderstanding and helped align expectations across organizational boundaries. Related to this, staged and need-based requests would function as a third mechanism. This means requesting only data that is needed for specific tasks reduced perceived risk, limited unnecessary information sharing, and made access more manageable for the industry partner. Table 1 also points to the importance of mechanisms that make data sharing safer and more acceptable within the organization. In this case, anonymization and abstraction protocols allowed any sensitive information to be removed while preserving the analytical usefulness of the data. These adjustments reduced the need for repeated clarifications and contributed to more predictable coordination cycles. Similarly, open discussions across teams on the limitations and constraints allowed for the establishment of realistic expectations and reduced any friction between the teams that could have been caused by hidden assumptions. For other collaborations of similar context, these observations suggest that trust could be strengthened when constraints are made explicitly clear and managed together rather than being informally worked around. Another important mechanism is internal facilitation. This case study showed that a key internal company representative played a very important and central role in coordinating across department, aligning stakeholders and supporting approvals. This indicates that collaborations under similar conditions would benefit from identifying an internal representative early on who can bridge organizational functions and translate between the research needs and the organizational priorities. Finally, the documented observations suggest that collaboration matures through repetition, feedback, and gradual expansion rather than through one-time interactions. Regular coordination meetings and clear requests helped reduce rework in communication and stabilized the process over time. In this sense, Table 1 highlights a progression from initial resistance to more predictable collaboration, suggesting that constrained collaborations could benefit from being structured as incremental and adaptive processes rather than as immediate full-access arrangements.

Taken together, these mechanisms suggest that collaborations facing similar constraints could improve performance and prevent delays by combining early recognition of organization concerns, staged information exchange, internal coordination roles, explicit risk management practices, and regular feedback-based adjustments. The collaboration behaviors could therefore be used as a conceptual guide to structuring collaboration under constraints.

Table 1: Mapping of Observed Collaboration Practices Using Lean Principles

#	Collaboration Situation/Behavior	Lean Principle(s) Applied	How the Principle Was Applied	Effect on Collaboration
1	Early resistance to sharing design data due to confidentiality and security concerns	Respect for People (acknowledging organizational constraints)	Industry concerns were acknowledged as legitimate rather than treated as obstacles; no pressure was applied to bypass governance processes	Increased openness in communication and willingness to engage in dialogue
2	Iterative clarification of data requirements between academic and industry teams	Transparency; Information flow	Researchers explained purpose, usage, and scope of each data request in plain, non-technical terms	Fewer misunderstandings and fewer back-and-forth cycles
3	Data requests shifted from bulk access to staged, need-based requests	Pull-based Information Flow; Waste Reduction	Data was requested only when required for specific research tasks	Minimized over-processing and information overload
4	Development of anonymization and abstraction protocols	Built-in Quality; Respect for People	Sensitive identifiers were removed while preserving analytical value of data	Increased acceptance of data sharing within organizational boundaries
5	Internal champion coordinating across departments (IT, legal, business units)	Lean Leadership (facilitative coordination); Flow	Key internal personnel acted as a boundary spanner, aligning stakeholders and unblocking approvals	Shortened approval cycles; and reduced waiting for data access
6	Translation of academic objectives into business-relevant value	Shared Understanding; Value Definition	Research objectives were reframed in terms of organizational relevance and potential value	Increased stakeholder engagement and alignment
7	Regular coordination meetings to address concerns and adjust expectations	Continuous Improvement (consistent with PDCA)	Feedback loops were used to refine data access and resolve emerging issues	Gradual stabilization of collaboration practices and improved predictability
8	Open discussion of data limitations and constraints	Transparency; Respect for People	Constraints were clearly communicated rather than hidden or avoided	Realistic expectations; stronger working relationship
9	Gradual expansion of data access as collaboration matured	Learning-based Leadership; Trust development	Access decisions were based on observed responsible use of prior data	Strengthened long-term collaboration
10	Reduced rework in communication as trust and understanding increased	Waste Reduction; Flow	Clear templates and shared understanding minimized repeated clarifications	More efficient communication and smoother coordination

DISCUSSION

This section interprets the findings through a Lean perspective to explain how data privacy constraints, leadership behaviours, and collaborative practices interacted to shape the evolution of an IAC. Rather than treating data access challenges as purely administrative obstacles, the discussion highlights how these constraints influenced coordination and trust-building within the collaboration.

DATA PRIVACY BARRIERS AS TRIGGERS FOR LEAN LEARNING

The findings indicate that privacy and security constraints initially limited information flow and delayed progress. However, these constraints also prompted more deliberate articulation of data needs, clearer communication of intent, and increased attention to coordination processes. In this sense, privacy barriers functioned as triggers for structured learning rather than solely as impediments. The iterative clarification of data requirements and acceptable access conditions resembles incremental learning cycles in which expectations and practices were progressively refined. These cycles encouraged reflection on what information was necessary, how it would be used, and how risks could be mitigated, leading to more stable and predictable collaboration practices over time. From a Lean perspective, this process aligns with learning-oriented improvement, where constraints expose opportunities to improve system design rather than being bypassed.

DATA ACCESS AS A LEAN INFORMATION FLOW PROCESS

The evolution of data-sharing practices in the case study highlights the value of viewing data access as an information flow process rather than a one-time transaction. Early attempts to request broad datasets coincided with delays and uncertainty, while later stages were characterized by staged, need-based exchanges aligned with specific research tasks. This shift reduced unnecessary data handling and improved predictability in coordination. Therefore, framing data access in this way supports a Lean approach to information management, where value is created through timely, purposeful information exchange rather than through accumulation. The co-development of anonymization and abstraction protocols further contributed to stabilizing this process by embedding quality and risk mitigation directly into the data-sharing workflow.

EVOLUTION OF TRUST AND DATA ACCESS OVER TIME

Over the course of the collaboration, observable changes occurred in both data access practices and interaction patterns. Initial data-sharing arrangements were limited in scope and characterized by cautious engagement. As the research team demonstrated adherence to agreed-upon data usage conditions, subsequent requests were met with fewer restrictions and shorter response times. Later stages of the collaboration involved broader access to project documentation and reduced reliance on extensive justification for individual requests, and communication exchanges became more direct over time. These changes coincided with increased confidence in the research process and greater willingness to engage in ongoing dialogue regarding data needs and constraints. The progression of data access and interaction practices reflects a gradual shift from restrictive control toward more open and efficient collaboration. In this context, the series of interactions between the university and the industry partner highlighted the importance of trust in supporting collaborative problem solving within the data access process. Even though trust was not established upfront, it was developed through repeated interactions, structured communications and the exchange of data-sharing requirements. These findings suggest that trust is not an abstract prerequisite for collaboration, but an outcome that can be intentionally supported through structured interaction and leadership behaviors.

INTERNAL CHAMPIONS AS ENABLERS OF FLOW AND COORDINATION

A central insight from this case is the role of the internal company champion in enabling coordination across organizational boundaries. The champion's involvement reduced fragmentation by providing a consistent point of contact and facilitating communication among project teams, information systems personnel, and compliance-related functions. In this case the internal champion's role was not limited to promoting Lean practices, but it also involved navigating approval processes, structuring information exchange under privacy and governance constraints, as well as helping align differing definitions of success between the academic and industry partners. This included mediating the different concepts of success as perceived by both the research and industry partners. By translating the research project's objectives into business-relevant terms, and explaining the shared goals that both organizations hold, the champion helped create an alignment between both the research and industry partners whose priorities and ways of working are not naturally the same. These behaviours reflect a form of Lean leadership focused on enabling flow rather than exercising authority. Importantly, the champion's role was not tied to technical expertise in the research itself, but to the ability to connect people, processes, and objectives across functional silos. Interpreted in light of Lean implementation, the role of the internal champion observed in this case aligns with broader findings on how Lean is sustained through social and organizational structures rather than isolated interventions.

THEORETICAL CONTRIBUTION TO LEAN LITERATURE

This study contributes to existing Lean literature by extending the application of Lean principles to boundary-spanning information flow specifically in data-constrained collaborations, providing a process-oriented account of how coordination, trust and facilitation mechanisms emerge as well as interact over time. This study further refines the understanding of internal champions and trust by situating them within structured data-sharing processes. Even though earlier studies emphasize the role of champions in facilitating coordination within project teams, this study further expands on that to show how the role of a champion can operate in a different context, where coordination must take place across organizational boundaries to allow access to project data. Similarly, while trust has been widely recognized as an important and crucial step for collaboration in Lean projects, this study further highlights how trust can develop through structured and controlled interactions, such as staged data sharing and formalized communication, rather than relying on informal communications. Therefore, by framing data access as an information flow process, this study gives a process-oriented perspective to existing Lean research by presenting how specific collaboration practices can be established under constrained conditions beyond traditional project delivery contexts.

IMPLICATIONS FOR INDUSTRY-ACADEMIA COLLABORATION

Taken together, the findings suggest that successful data-dependent collaborations benefit from treating data governance, coordination, and trust-building as interrelated processes. Identifying internal champions early, establishing clear communication templates, and adopting staged data-sharing approaches can support more effective collaboration under privacy constraints. For researchers, engaging with organizational concerns and approval processes as part of the collaborative work can support learning and strengthen long-term partnerships. For industry partners, framing research collaboration as an opportunity for organizational learning rather than risk exposure may enhance long-term value creation.

CONCLUSION

This paper examined an IAC aimed at enabling access to project data for the development of a research project that would assist an industry partner in overcoming a practical challenge that

it faces within its projects. The case demonstrates how data privacy and security constraints, often perceived as barriers to collaboration, shaped the evolution of communication, coordination, and trust between the research team and an industry partner. Central to this process was the presence of an internal company champion who facilitated cross-functional coordination and supported the alignment of research objectives with organizational priorities.

From a Lean perspective, the findings illustrate how collaborative practices evolved in response to constraints rather than despite them. Structured clarification of data needs, staged access arrangements, and transparent communication supported more stable information flow over time. The champion's facilitation role contributed to reduced delays, clearer approval pathways, and progressive expansion of data access, supporting learning and trust-building throughout the collaboration.

The study contributes to Lean research by demonstrating how established Lean principles can be applied to interpret and structure data access processes within IACs in the domain of data governance and research collaboration. Conceptually, it frames data access as an information flow process subject to Lean principles such as respect for people, transparency, and continuous improvement. Empirically, it provides process-level evidence of how internal champions act as Lean leadership enablers within industry-academia partnerships. Practically, the findings highlight actionable strategies for structuring data-dependent collaboration, including early identification of internal champions, staged and pull-based data sharing, and co-developed anonymization protocols.

For practitioners and researchers, the case underscores the importance of treating data access negotiations as an integral part of collaborative work rather than a preliminary administrative step. Establishing shared objectives early, supporting internal facilitation roles, and maintaining regular coordination and reflection can strengthen trust and improve collaboration outcomes under privacy constraints. Industry partners can engage in academic research without compromising data security or organizational control when collaboration is structured through explicit information-sharing workflows and governance-aware practices. Rather than requiring full data transparency, participation can be based on scoped data requests, staged access, anonymization, and internal review mechanisms that align with existing organizational policies. By framing data sharing as a managed process rather than a one-time disclosure, collaboration with academia becomes a controlled and incremental process that delivers value to industry partners by improving understanding of information flows, enabling early identification of coordination gaps, and supporting reflective learning on internal processes, while also reducing perceived risk. In this sense, IAC can serve not only as a research activity, but also as an opportunity for organizational learning and process improvement. While the study is based on a single case, the insights offer transferable lessons for organizations and research teams engaging in data-intensive partnerships.

Future research may build on this work by examining multiple cases across different organizational contexts, exploring how champion roles can be formally embedded within collaboration structures, in addition to investigating how joint learning mechanisms such as shared reviews or kaizen sessions could further improve information flow in constrained data context.

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