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**LEADERSHIP AND MANAGEMENT IN PROJECT ALLIANCES IN THE
CONSTRUCTION INDUSTRY: A NARRATIVE LITERATURE REVIEW**

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<p>Abstract</p> <p>Project alliances have become a widely adopted model for managing large projects, especially in the construction industry. However, leadership and management practices within them remain overlooked. This study presents a narrative literature review of project alliance leadership and management in the construction industry, synthesizing key themes present in the literature and examining how leadership has been framed and to what extent its role is recognized in the literature.</p> <p>Although governance structures, contracts, and frameworks are well documented, leadership itself is often neglected in research or only briefly discussed. The findings suggest that leadership plays a key role in building trust, supporting collaboration, and enabling adaptive decision-making in complex, multi-stakeholder, and high-risk environments. Yet much of the research continues to prioritize technical structures and governance over the human dynamics that shape collaboration and can ultimately influence project outcomes.</p> <p>The thesis highlights the need to better understand leadership approaches that support shared accountability, align diverse stakeholder interests, and contribute to long-term value creation and project success. Future research should explore what kinds of leadership and management approaches are most effective in project alliances, and how each contributes to successful project delivery beyond formal governance mechanisms.</p>			
<p>Keywords</p> <p>project alliance, construction, leadership, management, governance, performance management, collaboration, trust, risk and reward sharing, narrative literature review</p>			
Additional information			

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1 INTRODUCTION

This thesis presents a literature review on project alliance leadership and management in the construction industry, exploring how it has been covered in existing research and what narratives shape our understanding of effective leadership practices in this project delivery model. Project alliances, particularly in Finland, have become a common approach to managing large and complex infrastructure projects. Their success is often credited to effective leadership, as reports and industry discussions frequently highlight the role of leadership teams in ensuring collaboration, shared risk, and joint decision-making. While leadership holds these elements together, it has received surprisingly little attention in academic research. Given the growing use of project alliances in the construction industry and beyond, it is important to examine what kind of leadership and management this model may require and how it can influence collaboration and performance.

Project alliances in the construction industry have been studied in depth for their contract structures, governance, and risk management, with several tools and frameworks developed to support overall management of the project delivery. Despite this, leadership remains a relatively underexplored aspect, even though it plays a key role in ensuring both effective cooperation and the success of the projects. Strong leadership builds trust, transparency, and collaboration, all of which are essential when multiple shareholders with different interests work together toward the same goals. Governance provides the framework, but leadership and management determine how effectively it functions in practice. Without strong leadership, even well-designed contractual models may struggle to deliver the expected and required performance.

Understanding how the literature presents leadership and management can offer insights into what makes project alliances successful in the construction industry and where the challenges arise. Given the complexity and high stakes of large infrastructure projects, leadership is not just about control but also about fostering a collaborative culture that aligns different stakeholder priorities and ensures long-term success. This thesis argues that leadership is not just a supporting factor in project alliances, but a central element in discussions of success. It is a central element that

influences project outcomes, shaping how well governance structures, risk-sharing mechanisms, and collaborative practices truly function.

Recent leadership research also suggests that effective leadership in complex environments requires more than technical expertise or governance knowledge. Additionally, it depends on a leader's ability to navigate uncertainty, foster engagement, and adapt to evolving project needs. Northouse (2021, p. 540) emphasizes that leadership is not only about authority but also about influencing decision-making, performance, and team cohesion in high-stakes projects. In project alliances, this means leaders must find a balance between structured governance and human-centered leadership to ensure that collaboration remains strong even in complex projects. Studying how different leadership styles, such as transformational, authentic, or adaptive leadership approaches contribute to project alliances, could provide valuable insights for both research and practice.

This study contributes to the discussion on project alliance leadership and management in the construction industry, and supports both future research and improving real-life application of leadership practices for large projects in the construction industry. The following chapter explains why the study was conducted, why research on project alliance leadership is needed, and what research gaps this thesis aims to address. Chapter also presents the research objectives, discusses the scope and limitations, and outlines the structure of the thesis.

1.1 Research background

Project alliances, particularly in Finland, have gained traction as a response to the increasing complexity and cost of modern construction. Their emphasis on collaborative governance and risk-sharing sets them apart from more traditional project delivery models, requiring different approaches to leadership and management.

Managing large projects with multiple stakeholders and a substantial workforce creates significant challenges (Chen et al. 2012, p. 113). The success of this project delivery model is frequently attributed to its leadership teams in reports and news, bringing up an important question: how should a project of this scale ideally be

managed, and what are the qualities that make a great leader for project alliances? My assumption that leadership and management have not been a central focus in academic discussions on project alliances despite their growing adoption, influenced the decision to explore this topic in depth. To better understand what makes an effective leader for project alliances, it is important to first distinguish leadership from management. While both are essential, they serve different functions, especially in complex projects.

Leadership and management are often used interchangeably even though leadership focuses on vision, influence, and guiding change, and management ensures structure, efficiency, and stability. These concepts are the same in business, sports, politics, and the military, but understanding their differences remains important in all contexts. Their distinction became particularly clear with industrialization when management practices emerged to bring order to organizations (Northouse, 2021). Over a century ago, Fayol (1916) identified the key management functions as planning, organizing, staffing, and controlling. Leadership, however, has been studied for many centuries as the force behind change, innovation, and progress, reinforcing the idea that both are essential.

The relationship between leadership and management is not about choosing one over the other, but understanding how they complement each other. Kotter (1990) argued that management prevents chaos, while leadership allows organizations to evolve. Without leadership, management might become stiff and bureaucratic. Without management, leadership may lack clear direction and fail to produce lasting results. Bennis and Nanus (1985) summarized this by stating: *managers do things right, while leaders do the right things*.

Simonet and Tett (2012) linked leadership to strategic thinking, creativity, and intrinsic motivation, while management focuses on rules, short-term planning, and efficiency. Zaleznik (1977) suggested that leaders challenge norms and expand possibilities, whereas managers operate within existing systems to achieve goals. In project alliances, where collaboration and coordination are essential, balancing leadership and management is crucial for organizational success. In this thesis, I use “managing” and “project alliance management” as broad terms for the overall guidance of a project,

similar to how “project management” is used, rather than using “leading” or “project leadership”, while still acknowledging the distinction between the two. Differences of leadership and management are briefly summarized in Table 1.

Table 1. Differences between leadership and management. Adapted from Kotter (1990).

Leadership produces change and movement	Management produces order and consistency
<i>To lead means to influence others and create visions for change (Bennis & Nanus, 1985).</i>	<i>To manage is to accomplish activities and master routines (Bennis & Nanus, 1985).</i>
Establishing direction <ul style="list-style-type: none"> - Create a vision - Clarify the big picture - Set strategies 	Planning and budgeting <ul style="list-style-type: none"> - Establish agendas - Set timetables - Allocate resources
Aligning people <ul style="list-style-type: none"> - Communicate the goals - Seek commitment - Build teams and partnerships 	Organizing and staffing <ul style="list-style-type: none"> - Make job placements - Establish rules and procedures - Provide structure
Motivating and inspiring <ul style="list-style-type: none"> - Inspire and energize - Empower employees - Satisfy unmet needs 	Controlling and problem-solving <ul style="list-style-type: none"> - Develop incentives - Generate creative solutions - Take corrective action if need be

As trust, transparency, and ethics become increasingly emphasized in leadership discourse, there is a growing need for a more purposeful and compassionate leadership philosophy. Beddoes-Jones (2011, p. 4) argues that leaders today must adopt an approach that is pro-social, transformational, and focused on meaningful dialogue and relationships within and between organizations, particularly in complex project environments. This approach aligns with the increasing need for leadership that fosters trust and collaboration while emphasizing ethical governance, long-term value-creation and sustainability.

Beddoes-Jones (2011) also highlights that authentic leadership fosters trust, collaboration, and shared accountability, aligning closely with the core principles of project alliances and reinforcing the importance of ethical governance. Authentic leadership, as described in this context, provides a structured yet flexible approach that can support shareholder engagement, minimize conflicts, and enhance project performance by promoting transparency and shared accountability.

With personal experience in large infrastructure projects and extensive studies in business management and a broad spectrum of leadership studies, this study was driven by my own interest in how the leadership and management of project alliances has been documented and researched. The thesis aims to deepen the understanding of project alliance leadership and management in the construction industry and identify directions for future research by exploring the narratives in existing literature. This topic is also relevant in Finland, where project alliances are widely used for major and infrastructure investments. Their complexity, high costs, and reliance on collaboration between stakeholders introduce significant risks, also making them a compelling subject of study. By identifying prevailing narratives in project alliance research, this thesis seeks to provide insights for both academic study and the practical leadership and management methods of large-scale projects.

I assume that the previous research has focused on contracts and risk-sharing in project alliances and the role of leadership has received less attention. Addressing this gap could help clarify how leadership influences collaboration, decision-making, and project outcomes. In practice, clearer leadership models can improve communication, trust, and efficiency, leading to better project delivery. As project alliances continue to grow, a stronger focus on leadership could support their successful implementation.

1.2 Research objectives

This study was founded on the assumption that despite the widespread adoption of the project alliance model, academic research on the specific leadership and management practices and characteristics remain limited. The aim is to deepen the understanding of the existing literature on project alliance management in the construction industry, explore key themes that contribute to successful projects, and examine the role of leadership and management in that equation. Driven by these considerations, the following research question was formulated:

What are the leadership and management narratives in project alliance literature in the construction industry?

By identifying and analyzing the narratives, this study seeks to contribute to future research on management and leadership practices within project alliances in the construction industry, offering insights that may support both academic study and practical applications. This study aims to highlight the missing perspectives and reposition leadership practices from a supporting role toward being a core focus in project alliance management research, thereby strengthening their relevance and impact in real project environments.

1.3 Scope and limitations

This study employs the narrative literature review methodology, which means that its findings are based on the existing academic research rather than new empirical data (Salminen, 2011). Every effort has been made to include relevant sources. However, it is important to acknowledge that due to the subjective nature of the selection process, some relevant studies may have been unintentionally overlooked.

Salminen (2011) also emphasizes that unlike systematic reviews, which follow a strict inclusion criterion, a narrative approach allows for a broader exploration of themes and connections that might be missed in more rigid methods. This flexibility can provide a deeper or alternative understanding of project alliance leadership, depending on how the literature is interpreted and connected. At the same time, this approach inevitably introduces some selection bias, but it also brings to light shifts in thinking, emerging perspectives, and gaps in research. Also, it is important to note that in this thesis, the term "project alliance" always refers to project alliances in the construction industry, unless otherwise specified. Given all these factors, the findings should be seen as a reflection of documented academic perspectives and my interpretation of them, rather than an exhaustive or absolute account of project alliance leadership in the construction industry.

1.4 Structure of the thesis

This thesis examines the literature on project alliance management, focusing on the themes that emerge in the literature. It begins with an introduction that outlines the background and objectives of the study, explaining briefly how project alliances have developed in response to challenges in traditional project delivery models.

The following chapter provides an overview of project alliances in the construction industry according to the literature, defining key concepts and tracing their development over time. The research methodology chapter then describes the use of the narrative literature review method, detailing the selection criteria of the sources that were used for the review.

This foundation leads into the core themes of the study, including governance structures, risk and reward mechanisms, collaboration, and leadership. Rather than only summarizing past research, the thesis aims to comment and reconstruct a narrative by examining how these topics have been presented in the literature, how perspectives have evolved over time, and where different viewpoints align or diverge. The analysis and discussion chapter summarizes the key findings, explores the gaps identified in the existing research, and suggests directions for future research. Finally, the thesis ends with concluding remarks.

2 PROJECT ALLIANCES IN THE CONSTRUCTION INDUSTRY

The project alliance model has shaped the construction industry by quite effectively resolving many challenges that have plagued the traditional project delivery approaches. Project alliancing fosters team integration and cooperation, which has led to improved project performance, particularly in large infrastructure projects where managing diverse teams is critical (Che Ibrahim, Costello, and Wilkinson, 2013, p. 132). This chapter will shed light on the project alliances in the construction industry. It begins by defining and conceptualizing project alliances to clarify their meaning and purpose. The chapter then introduces some key elements of project alliances and lastly traces their historical origins and how they made their way to Finland.

2.1 Conceptualizing project alliances

This section first establishes the foundational components of project alliances before discussing their role in achieving effective project delivery. A project alliance is a collaborative approach to project delivery that brings together key stakeholders, such as clients, contractors, and designers, under a single temporary agreement to achieve shared objectives. Aaltonen and Turkulainen (2018, p. 1391) explain how unlike more traditional contractual agreements that often facilitate oppositional relationships and reinforce individual goals, a project alliance aims to align risks, responsibilities, and rewards across all stakeholders. This integration prioritizes collective success and encourages a cooperative environment that is particularly suitable for managing complex and high-risk projects.

Also, collaboration and joint decision-making are integral to the project alliance model. Stakeholders aspire to work as a unified entity, addressing challenges and resolving disputes early through open communication and transparency. This approach is intended to build trust and accountability and ensure that all participants are focused on commonly set goals throughout the project (Che Ibrahim, Costello & Wilkinson, 2018). Aaltonen and Turkulainen (2018, p. 1391) note that financial incentives are directly connected to the project's overall success, aimed to motivate shareholders to collaborate instead of working independently. These features enable project alliances

to promote flexibility and innovation, which may not be so present in traditional project delivery methods.

Rowlinson et al. (2006, p. 80) identify key elements that define project alliances, including shared risks and rewards, integrated governance structures, a no-blame culture, and open-book cost management. These features encourage collaboration and help promote trust among stakeholders. Similarly, Moradi, Kähkönen and Sormunen (2022) emphasize the importance of open-book cost management as well. Researchers at large also highlight incentivized cost reimbursement structures and pain/gain-share arrangements as being essential for aligning commercial objectives in project alliances. In addition, Moradi et al. (2022) point to the integration of project teams, unanimous decision-making, and no-dispute clauses as key factors that support collaboration and stability within project alliances.

When implemented successfully, project alliances have demonstrated the ability to improve efficiency, enhance stakeholder satisfaction, and deliver higher-quality results than traditional project management approaches (Rowlinson et al., 2006). Their adaptability makes them particularly effective in large-scale infrastructure and construction projects, where flexibility and collaboration are crucial. Moradi et al. (2022) reinforce this by highlighting that aligning commercial and operational objectives plays a key role in achieving better project outcomes. Given these advantages, project alliances represent a meaningful shift in project management, emphasizing integration, trust, and shared success. They provide a strong framework for navigating the complexities of modern projects and achieving outcomes that can benefit all participants.

2.2 Key elements of a project alliance

To distinguish project alliances from more traditional project delivery models in the construction industry and better understand their mechanisms, we need to first outline the main characteristics of the traditional models. Most commonly used traditional project delivery methods typically include design–bid–build, design–build, fixed-price contracting, and construction management models. In the design–bid–build model, the

client makes a separate contract for the designing and construction, which are delivered separately and one after the other. This model tends to create fragmentation and adversarial relationships due to lack of clear collaboration and separate responsibilities in the process (Lahdenperä, 2012). Walker et al. (2022) explains that the design–build model differs by trying to resolve the separation by combining both design and construction under a single contract, which does shorten delivery times but at the same time has found to reduce owner control and transparency over design decisions. Fixed-price contracting, or often referred to as lump sum contracting, is based on a total price agreed before the project. It shifts financial risk from the client to the contractor, and tends to discourage flexibility, innovation and collaboration when project changes occur (European Construction Institute, 1999). Construction management, on the other hand, involves the client hiring a construction manager to coordinate various trade contractors without transferring construction risk. While this provides more control for the client, it often leads to fragmented responsibilities, communication errors and limited integration (Developing a Quality Culture, 2005).

The distinguishing features of project alliances become clearer when we look at the key elements highlighted by researchers. Rowlinson et al. (2006) identify shared risks and rewards, integrated governance, a no-blame culture, and open-book cost management as primary characteristics. Che Ibrahim et al. (2018) highlight joint decision-making, early dispute resolution and transparency. Aaltonen and Turkulainen (2018) emphasize financial incentives and innovation as essential features. Moradi et al. focus on pain/gain-share arrangements, project team integration and no-dispute clauses as central principles. Lahdenperä (2019) finds that relational governance mechanisms such as joint decision-making and shared accountability, have strengthened collaboration in Finnish infrastructure projects altogether. In project alliances, the selection of service providers, including designers and builders, occurs early in the process, commonly before the design phase has begun. This early integration allows key stakeholders to contribute their expertise from the get-go, creating innovation and ensuring that project goals remain aligned. By involving partners at this stage, project alliances minimize misunderstandings and ideally establish a unified organization from planning to execution. Lahdenperä (2006) also highlights that this proactive collaboration strengthens trust and mutual understanding

among stakeholders while also creating a framework for joint problem-solving and risk-sharing, all of which are essential to the success of a project alliance.

A fundamental aspect of this collaborative framework is the no-blame culture, which shifts the focus from assigning fault to resolving issues collectively. This culture ensures that stakeholders work together to find solutions rather than placing blame. Also, this framework aims to foster a problem-solving mindset, while reducing confrontational interactions and legal proceedings (Rowlinson et al., 2006, p. 80). The elimination of traditional dispute-resolution tactics like lawsuits help prevent unnecessary delays and cost overruns while reinforcing trust among participants (Association of Consulting Engineers Australia, 2005). Lahdenperä (2006) explains that a project alliance truly begins to take shape as stakeholders align their goals, negotiate terms, and decide potential partners. This phase also includes some informal steps such as evaluating compatibility as a whole, and establishing trust, for example during workshops, which are crucial for building and maintaining a no-blame environment. Ross (2000) states that single contract then laminates this structure, bringing all key participants under shared responsibility and reinforcing the principles of collective accountability.

Another key element is the beforementioned early contractor involvement, which plays a critical role in shaping the project from the outset and binds stakeholders together. Early engagement allows contractors to contribute to design and construction decisions from the beginning of the process, improving the odds to succeed and hopefully minimizing rework (Relationship Contracting, 1999). Contractors contribute their knowledge of building, materials, and scheduling, leading to better solutions and increased project efficiency (Yeung, Chan & Chan, 2007). Ross (2000) proposes that early selection also fosters stronger relationships among alliance participants, aligning objectives and reinforcing a sense of ownership for the whole project organization.

In the view of Rahman and Alhassan (2012), this approach not only reduces projects risks but also encourages innovation through unified decision-making. Moreover, they identify both benefits and challenges in early contractor involvement, noting that successful implementation depends heavily on mutual commitment and open

communication, and absence of aligned incentives and shared responsibility can restrict its effectiveness. In addition, Lahdenperä (2006) supports the idea that the formal structure of an alliance contract strengthens these early relationships, ensuring that all participants remain committed to same goals.

Yeung et al. (2007) discuss how joint risk and reward sharing models further strengthen collaboration by ensuring that all parties are equally invested in the project outcomes. Unlike traditional contracts, where risks and rewards are distributed unequally, an alliance model ensures that success and failure are shared collectively. Ross (2000) mentions that this aims to reduce opportunistic behavior and encourages proactive contributions to cost control, quality improvements, and to scheduled execution. The project alliance contract defines these roles and responsibilities, prioritizing a unified approach over fragmented decision-making (Lahdenperä, 2006). The target cost model introduces more flexibility by setting an upper cost limit during the initial tender while allowing the final cost to be refined collaboratively in the development phase. Embedded incentive mechanisms align financial rewards with project performance, ideally reinforcing cost efficiency and quality standards (Lahdenperä, 2006, p. 14).

Transparency plays a crucial role in ensuring trust between stakeholders, and open-book cost management is a central practice that supports this. By giving all participants access to project financials, open-book practices aim to minimize disputes (Ross, 2000). Open-book cost management simply means that all costs between shareholders are visible to all alliance partners. It supports trust, transparency, and shared control over spending. Lahdenperä (2006) explains that transparency within project alliances is crucial for maintaining accountability, as financial and operational data must be fully accessible. Open-book accounting eliminates hidden costs and improves financial planning altogether, allowing all parties to make informed decisions (ACEA, 2005). Yeung et al. (2007) add how additionally, joint financial management strengthens governance by ensuring that it is a shared responsibility.

Pain/gain-share arrangements then ensure that financial risks and benefits are distributed fairly. These mechanisms reward cost savings and penalize overruns,

reinforcing collective responsibility and encourage cost-conscious decision-making (Ross, 2000). Research suggests that this approach fosters efficiency and innovation while reducing oppositional interactions (ACEA, 2005). By integrating pain/gain-share mechanisms, alliances create a financial framework that supports long-term collaboration, ensuring that all participants remain focused on achieving optimal project outcomes (Yeung et al., 2007).

But at the core of all project alliances is a collaborative work environment, which establishes a shared decision-making structure among all stakeholders. Unlike traditional hierarchical models, project alliances aim to ensure that all parties have an equal voice in strategic planning and execution (ACEA, 2005). According to Ross (2000) this enhances transparency, trust, and alignment of project goals while reducing conflicts. The effectiveness of collaborative governance is further strengthened through alliance leadership boards, which maintain strategic focus during the project (Yeung et al., 2007). This not only promotes togetherness but also seeks to ensure that project objectives remain aligned with the best interests of all participants.

Yeung et al., (2007, p. 223) point out how this collaborative governance structure is reflected in the way project alliances are organized. The project alliance leadership team is responsible for guiding the project, ensuring that key decisions support shared goals. Also, day-to-day operations are led by the leadership team. The team includes senior representatives from each participating firm and should reinforce the "best-for-project" mindset. Unlike traditional contracts that often might lead to litigation issues the leadership team should emphasize collective problem-solving to keep the project on track. In some alliances, a project alliance board may also provide additional strategic guidance (European Construction Institute, 2000, p. 7).

The integrated project team executes the project itself, bringing together personnel from different organizations into a single, co-located organization. Rather than working in silos, members are meant to collaborate across disciplines to improve efficiency, share expertise, and solve problems. The structure balances individual accountability with collective project responsibility. Each key function, such as design,

construction, and safety management, is typically led by a representative from the party accountable for that function. (European Construction Institute, 2000, p. 5.)

Ross (2000, p. 12) notes that the use of performance-based incentives further align efforts, ensuring that cost savings and project benefits are distributed fairly among all alliance members. This integrated organizational structure eliminates the traditional setups, fostering more collaboration, knowledge-sharing, and joint financial responsibility (European Construction Institute, 2000, p. 7). By integrating key elements such as relational governance mechanisms, financial transparency, and shared risks and rewards, project alliances create an environment that promotes collaboration and efficiency. These elements ensure that shareholders remain focused, conflicts are minimized, and project performance is optimized, making the project alliance model an effective approach for managing complex projects.

2.3 History of project alliance research

Instead of serving as a groundbreaking concept to enhance efficiency in the construction industry, British Petroleum from the United Kingdom developed project alliances in the 1990s for the North Sea oil projects to tackle the common inefficiencies in traditional contracts. At the time, project delivery methods were oppositional and prone to cost and schedule overruns. British Petroleum created the model to address high costs and inefficiencies resulting from poor risk allocation and clashing relationships.

Chen et al. (2012, p. 106) note that this model, which emphasized the unique concept of sharing risks and rewards in high-stakes environments, inspired its later adoption in other regions as well. In Australia, the Wandoo and East Spar Alliances were among the first examples, drawing directly from practices developed in the North Sea. These Australian projects especially demonstrated the effectiveness of this project delivery model in addressing technical and cost-control challenges, particularly in the oil and gas sector.

Soon thereafter in Australia, the method expanded to public infrastructure investments and other large projects. According to Chen et al. (2012, p. 112), Sydney Water's Northside Storage Tunnel Project marked a key milestone as the first alliancing project in the public sector. This project highlighted how project alliances could address time and cost constraints effectively while fostering collaboration and aligning stakeholder goals also in environments with more bureaucracy. By 2009, more than three hundred projects in Australia, collectively worth an estimated ninety billion Australian dollars, had been completed using the, still quite new, project alliance model. This firmly established the country as a global leader in the practice.

Afterwards, project alliances gained traction internationally, particularly in Finland, where the Finnish Transport Agency introduced the model in the mid-2000s. As Lappi, Aaltonen and Kujala (2019, p. 12) explain, early Finnish adoption was supported by numerous conferences, seminars, and research initiatives conducted by the Technical Research Centre of Finland. These efforts brought professionals and academics around the country together to explore how alliances could address challenges in large-scale infrastructure projects, while still promoting long-term value and sustainability. The Lielähti-Kokemäki railway project was the first Finnish project alliance and was considered a pilot of the project model in 2011. Next year, the Tampere Rantatunneli project began, and according to reports, it was a success and simultaneously highlighted how project alliances could be adapted also to Finnish regulatory frameworks and public sector needs. Rantatunneli project was awarded first prize in IPMA's competition in the category of Mega-sized Projects (Finnish Transport Infrastructure Agency, 2018).

Elsewhere, the adoption of project alliances surged in the mid-2000s as their effectiveness in managing high-risk, complex projects became widely recognized. Their ability to innovate and integrate diverse expertise made them valuable especially in transportation and infrastructure sectors, often funded by taxes, where traditional contract models struggled to deliver the expected outcomes. However, the history of project alliances is not without challenges. Hoefl, Pieper, Eriksson and Bargstädt (2021, p. 6) highlight that despite the potential benefits of project alliances, resistance can emerge due to a lack of trust between partners. This mistrust often stems from conflicting interests and difficulties to align diverse stakeholder goals. This can block

collaboration and project success, and addressing mistrust is essential for the continued evolution of the model.

The history of project alliances truly underscores the importance of collaboration, trust, and shared objectives in delivering successful outcomes. From their origins in the United Kingdom, through Australia to Finland, and later to their global adoption, alliances have proven to be a versatile and effective tool for tackling the complexities of modern project management with collaboration. As Chen et al. (2012, p. 113) put it, the evolution of project alliances in the construction industry reflects a response to the challenges of large-scale projects and the need for more innovative project delivery methods. The evolution of project alliances in the construction industry and their adoption in Finland is visualized in Figure 1.

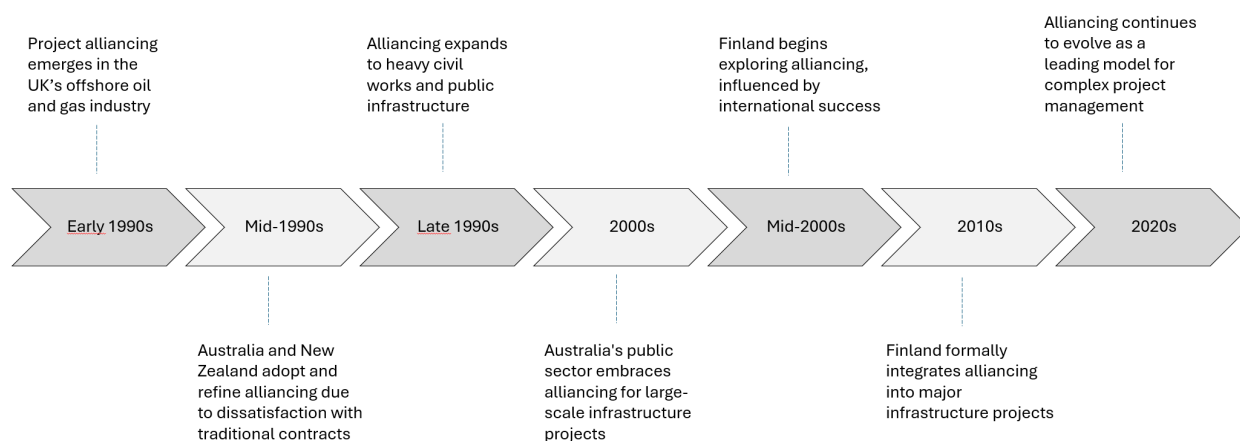


Figure 1. Evolution of project alliances and their adoption in Finland.

3 RESEARCH METHODOLOGY

This study utilizes a narrative literature review to examine existing research on project alliance management and leadership in the construction industry. This chapter presents the research methodology of this study. This study was conducted as a narrative literature review, applying thematic analysis to systematically organize, interpret, and present key insights.

3.1 Narrative literature review approach

A narrative approach creates a broad but readable overview of the topic at hand and introduces the history and development of the subject (Salminen, 2011). According to Wong, Greenhalgh, Westhorp, Buckingham, and Pawson (2013), it is particularly well-suited for topics that have been explored from different perspectives across multiple disciplines, making a full systematic review challenging. This flexibility enables the inclusion of diverse perspectives, allowing for a more comprehensive understanding of how ideas and research have evolved over time, which may not be feasible with a strictly systematic approach (Green, Johnson, & Adams, 2006).

This approach is commonly used in qualitative research, as it enables the synthesis of prior studies by identifying recurring themes, concepts, and trends. Unlike systematic reviews, which follow a rigid and replicable process, narrative reviews offer a more flexible structure, making it possible to conduct a comprehensive yet interpretative exploration of the topic. By integrating insights from various perspectives and theoretical frameworks, this method helps to develop a broad and cohesive understanding of the subject at hand (Salminen, 2011). Because of this adaptability, narrative literature reviews are often referred to as traditional literature reviews. The main differentiating factors between narrative and systematic literature research are summarized in Table 2.

Table 2. Difference between a narrative review and a systematic review. Adapted from Kysh (2013).

	Narrative review	Systematic review
Definition	Qualitatively summarizes evidence on a topic using informal or subjective methods to collect and interpret studies	High level overview of preliminary research on a defined question that identifies, selects, synthesizes, and appraises all high-quality research evidence
Goal	To provide an overview of a topic	To answer a focused question and eliminating bias
Question	Can be a defined question of a general topic	Defined and answerable question
Components	<ul style="list-style-type: none"> - Introduction - Methods - Discussion - Conclusion - Reference list 	<ul style="list-style-type: none"> - Pre-specified eligibility criteria - Systematic search strategy - Assessment of the validity of findings - Interpretation and presentation of results - Reference list
Timeline	Weeks to months	Months to years
Requirements	<ul style="list-style-type: none"> - Understanding of a topic - Perform searches of one or more databases 	<ul style="list-style-type: none"> - Thorough knowledge of the topic - Perform searches of all relevant databases - Statistical analysis resources (for meta-analysis)
Value	<ul style="list-style-type: none"> - Provides a summary of literature on a topic - Clarifying conceptual understanding 	<ul style="list-style-type: none"> - Connects researchers and professionals to high quality evidence - Supports evidence-based practice

Narrative literature reviews can be categorized into three types: editorial, commentary, and overview. The broadest form is the overview, which is the approach used in this study. As a research method, it aims to summarize previous research, presenting its analysis as a descriptive synthesis in a coherent and concise manner (Salminen, 2011). Typically, research material obtained through a narrative literature review does not go through a strict selection process, yet the conclusions drawn can still align with the synthesizing goal of a literature review (Green et al., 2006).

Green et al. (2006) further note that a well-executed narrative review does more than just compile research; it organizes information in a way that can highlight key themes and ongoing academic discussions quite clearly. Since a narrative review does not rely on strict inclusion criteria, it allows for a broader range of sources to be considered while still maintaining a structured and meaningful integration of the existing literature

(Green et al., 2006). In this way, it provides an overview that not only maps out established knowledge but also identifies emerging perspectives within the field.

As a stand-alone review, a literature review functions as an independent academic document that may serve as a foundation for future research, even when it is not directly followed by an empirical study. This type of review is frequently used in theses and dissertations, particularly when they are theoretically or philosophically based (Efron & Ravid, 2019, p. 2). In this way, it provides an overview that not only maps out established knowledge but also identifies emerging perspectives within the field. This review includes almost solely peer-reviewed studies and established reports to ensure credibility. Industry reports and news were included only to add background context. The narrative approach allows for a broader selection of sources, making it better suited for exploring leadership in project alliances across multiple disciplines. This flexibility helps identify recurring themes and gaps in research while providing a comprehensive view of how leadership in project alliances has been studied and where further exploration is needed.

3.2 Literature search strategy and data selection

To gather relevant literature for this review, a structured search was first conducted using the Clarivate Web of Science database. The search was refined by applying selected keywords and filters to prioritize credible sources and avoid the unnecessary need for translation. Boolean operators were used to further refine the search and ensure relevant results. MIT Libraries (n.d.) explain how Boolean operators refine searches by ensuring relevance. AND narrows the results to studies on project alliances and management, OR includes related terms, and NOT excludes irrelevant topics. Using parentheses and quotation marks further improves search precision, helping to identify key research on leadership in project alliances in the construction industry. Figure 2 demonstrates the Boolean operators using a Venn diagram.

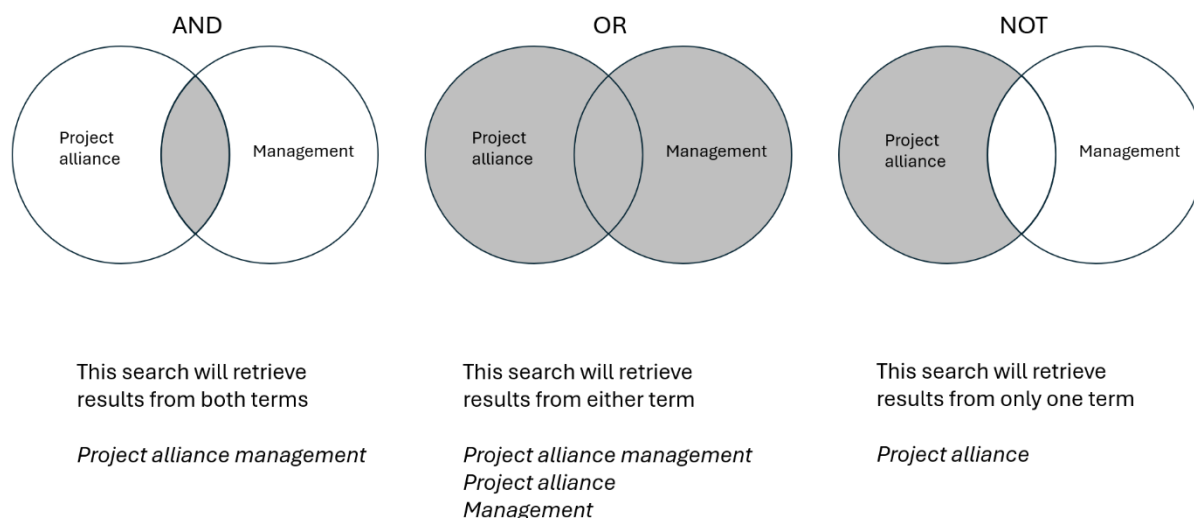


Figure 2. Boolean operators. Adapted from Slippery Rock University Library (n.d.).

The keywords "project" AND "alliance" AND "management" AND "construction" were used to narrow the focus to studies that included all these terms. Additionally, refinement terms such as "review article" OR "article" OR "early access"-article were applied to include different types of peer-reviewed publications while maintaining relevance. The search was further refined to English-language publications to ensure consistency in analysis. Filters were applied to exclude unrelated articles, focusing only on research about project alliances.

The first search was conducted using the selected terms, and the retrieved articles were downloaded on files and the data exported from the database Web of Science was organized in an Excel file to keep track of the sources and themes. After reviewing the titles and abstracts, it became clear that many articles were not actually about project alliances but focused on other project delivery models or collaborative agreements. Consequently, a large number of results had to be excluded. A second, more refined search was conducted, this time specifically targeting articles related to project alliances. However, after going through the abstracts, many articles were found to concentrate on industries outside the construction sector and were excluded.

After reading the remaining articles in more detail, several were still deemed irrelevant to the scope of the thesis and then excluded. Many articles outline successful project alliances and developed frameworks, without mentioning the management and leadership aspects at all. To fill in specific gaps, additional searches were carried out, focusing on topics such as narrative literature reviews, leadership practices, cost-related research and historical aspects of project alliances. The thesis supervisor also provided relevant articles, which were incorporated into the final selection. The step-by-step approach used to identify, filter, and categorize relevant literature is visualized in Figure 3 as a flowchart, illustrating the structured search protocol and selection criteria applied throughout the process.

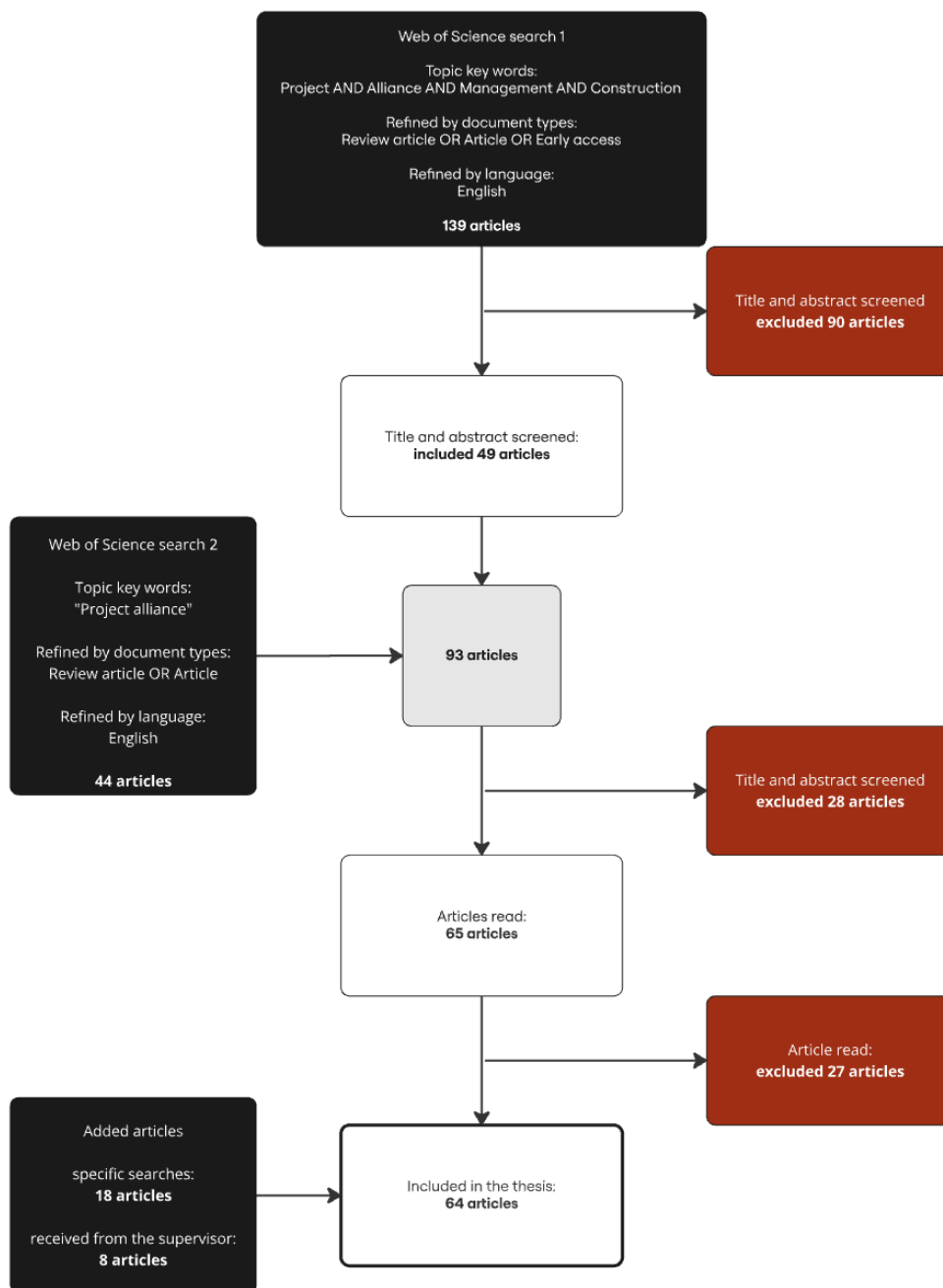


Figure 3. Search protocol.

The selected studies were analyzed to find common themes in project alliance management. Key topics were identified through a structured review process. Thematic analysis was done in Excel, using manual coding and formatting to organize the findings. Recurring concepts were labeled and grouped into broader themes to highlight patterns in the literature.

3.3 Inclusion and exclusion criteria

To ensure the relevance and quality of the literature included in this narrative review, only research articles that explicitly discussed project alliances in the construction industry from a management perspective were considered. The term "alliance" is commonly used in business literature to describe various types of collaboration, such as strategic alliances, joint ventures, and industry partnerships. However, since this study focuses specifically on leadership and management in project alliances in construction, only articles where relevant words appeared in the title, abstract, or keywords were included.

Certain types of studies were later excluded to maintain a clear and relevant research scope. Articles that discussed alliances in a general business context without referring specifically to project alliances in the construction industry were not considered. Additionally, non-peer-reviewed sources, such as industry reports and news, were included only to provide background context rather than contribute to the core findings of this review.

While these selection criteria ensured a targeted and industry-specific analysis, they also introduced a degree of selection bias. Excluding studies that focused on broader collaboration frameworks or alliances in other sectors may limit the applicability of findings beyond construction. Similarly, prioritizing peer-reviewed academic sources may overlook valuable insights from industry reports, practitioner experiences, and emerging trends documented in non-academic publications. These choices were made to maintain academic rigor and a clear research focus, but it is important to acknowledge that they shape the scope of the study and may influence the conclusions drawn. By applying these criteria, this review maintained a focused and meaningful synthesis of research that specifically addresses the management aspects of project alliances, avoiding broader discussions that do not contribute directly to the intended analysis.

3.4 Data analysis and synthesis

For analyzing the literature, I decided to use thematic analysis as it felt the most natural approach. The same themes kept emerging through the literature, which made this method ideal for exploring the complexities of project alliances. Thematic analysis is a technique used to identify and analyze patterns or themes within qualitative data. It is flexible, which makes it well suited for examining complex topics like project alliances where multiple perspectives and factors need to be understood. The process involves familiarizing yourself with the data, coding it, identifying themes, and reviewing them (Braun & Clarke, 2006).

The flexibility of thematic analysis is particularly useful in this study because project alliances involve a broad range practices that link to leadership and management and do not fit neatly into predefined categories. Unlike systematic methods that rely on rigid classification, thematic analysis allows for an adaptive approach, capturing emerging concepts as they appear in the literature rather than forcing them into predetermined frameworks. This is essential for understanding how leadership dynamics influence collaboration and decision making in project alliances.

This method also helps to simplify large volumes of information, allowing key insights related to leadership, collaboration, and governance to be identified and understood more clearly. By applying thematic analysis, researchers can delve into the factors that shape how project alliances function, such as decision making, trust building, and team collaboration. It provides a deeper understanding of the dynamics in large, multifaceted projects (Flick, 2018).

While this study provides a broad overview of existing research, it relies on secondary data, which makes it difficult to confirm the consistency of findings across different contexts. Future studies could strengthen these conclusions by including empirical case studies. Additionally, project management research as a whole is a unique field that intersects engineering, business, and social sciences, requiring attention from managers at all levels (Locatelli et al., 2023). Because of this, thematic analysis enables a more holistic synthesis of findings, ensuring a comprehensive analysis of how leadership contributes to project alliance success.

4 THEMATIC OVERVIEW OF REVIEW FINDINGS

This chapter examines key themes in project alliance management literature within the context of construction industry, focusing on how it has evolved and been applied over time. By looking more closely at the highlighted themes in the context of leadership and management, the discussion outlines how project alliances address complexities in modern construction projects. These themes help explain how alliances navigate challenges and promote innovation. The section starts with the importance of collaboration in project alliances, then covers risk and reward management, and the tools developed to facilitate and support effective project alliance management.

4.1 Themes in project alliance leadership and management literature

The literature of managing project alliances in the construction industry truly reflects the complexity that lies in the types of projects that alliances are formed to oversee. Project alliances emerged to create an environment of collaboration in large projects as a response to the inefficiencies of more traditional competition-based project management models (Aaltonen & Turkulainen, 2018, p. 1391). The projects can be overwhelmingly complicated, and the primary challenges are usually technical, but also managerial. These project organizations consist of participants with differing values, knowledge, cultures, goals, and business models, making alignment toward shared objectives highly challenging (Kujala et al., 2020). Recent research suggests that effective leadership and governance structures are crucial in establishing the operational tone for the entire project (Kujala et al., 2020, p. 645).

Early studies emphasized the transformative potential of project alliances, highlighting the contrast between the already established methods and this new, innovative approach, particularly focusing on how traditional delivery methods contribute to problems such as fragmented processes and oppositional relationships among stakeholders. Construction industry at large and large projects are inherently fragmented and divisive by nature, which creates conflicting challenges on their own (Cheng et al., 2003, p. 467). Furthermore, these traditional methods incentivize participants to prioritize maximizing their own profits rather than collaborating toward

common goals. Oftentimes hostility leads to litigation. This behavior in a project alliance results from reduced efforts to heightened costs, further undermining productivity and then increasing inefficiencies (Guo et al., 2023; Holmstrom & Milgrom, 1991). Traditional models where parties operate under separate contracts are often better suited for simpler tasks or subcontracting arrangements (Kujala et al., p. 646, 2020).

4.1.1 Risk, reward, and performance management

The emphasis on project management has gradually shifted from merely delivering a product on time, to creating value. Traditionally, project management focused on the iron triangle, a concept introduced by Dr. Martin Barnes in 1969 to illustrate the constraints of time, cost, and scope (Pargar et al., 2019). This triple constraint highlights the constant need to manage trade-offs to achieve quality in a project. While still essential, modern project management recognizes that success is not solely about meeting technical objectives but also about delivering meaningful outcomes that justify the time, cost, and resources invested (Pargar et al., 2019).

As project alliances gain traction, their success hinges on well-designed risk, reward, and performance management mechanisms. Project alliances employ innovative approaches to risk and reward sharing, addressing the challenges of aligning stakeholder incentives and managing uncertainties. These mechanisms are designed to keep all parties focused on shared objectives, fostering collaboration and minimizing oppositional dynamics. Pain/gain-share models, for instance, tie financial rewards directly to the overall success of the project, encouraging participants to prioritize collective performance over individual gains (Guo et al., 2023). In addition to managing risks effectively, these practices enhance accountability and adaptability among shareholders.

Balancing collaboration and competition within project alliances is another critical aspect of successful performance management. Qian, Zhang and Cao (2021) introduce the concept of behavioral tension, where cooperative and competitive forces coexist. They argue that moderate levels of behavioral tension optimize value creation by

fostering trust, resource sharing, and innovation while maintaining efficiency. Excessive cooperation, however, can lead to stagnation, while excessive competition may result in conflict and inefficiencies. Dependence asymmetry, where significant imbalances in resource dependency exist between stakeholders, further complicates this balance. Qian et al. (2021) suggest that effective management of these dynamics requires fostering trust and collaboration while maintaining a healthy degree of competition.

Guo et al. (2023) emphasize the role of effort-based profit distribution in mitigating moral hazards and promoting equitable shareholder participation. To support these efforts, they propose the Holmström-Milgrom model, a quantitative framework for designing contracts with incentives that address the principal-agent problem. This model helps structure incentive mechanisms that balance motivation and risk, ensuring that all participants remain committed to shared goals. The principal-agent problem arises when a principal, such as a project owner, relies on an agent, like a contractor, whose actions cannot be directly observed and whose performance is influenced by external factors. To align the agent's behavior with the principal's interests, incentive mechanisms such as bonuses, profit-sharing, or monitoring systems are introduced.

However, designing these incentives requires careful calibration to avoid placing excessive risk on the agent while still motivating performance. The Holmström-Milgrom model provides a structured approach to addressing this challenge by considering how different incentive structures influence behavior. It highlights that in multi-task environments, excessively strong incentives for one aspect can lead to the neglect of others. In project alliances, this insight is particularly relevant for structuring pain/gain-share mechanisms to ensure that shareholders remain engaged in collective success rather than optimizing individual performance metrics. (Guo et al., 2023.)

Effective governance is essential for ensuring that risk and performance management strategies function as intended. Fostering trust and mitigating risks in multi-party projects require governance strategies that evolve over time. Wang et al. (2019) argue that contractual governance, with detailed agreements and enforcement measures, is particularly effective in the early stages of a project. However, as relationships

between stakeholders mature, relational governance becomes more significant. According to Wang et al. (2019), integrating *guanxi*, a concept rooted in Chinese culture that emphasizes interpersonal networks and social connections, could enhance trust and collaboration. The Oxford English Dictionary (n.d.) defines *guanxi* as “the system of social networks and influential relationships which facilitate business and other dealings.” *Guanxi* strengthens cooperative relationships by fostering mutual understanding and reciprocal obligations, thereby reducing the likelihood of opportunistic behavior.

Opportunity management also contributes to improving project outcomes by identifying and leveraging potential advantages throughout the project lifecycle. Hietajärvi et al. (2017c) define this process as a systematic approach with five key steps: planning objectives, identifying opportunities, analyzing impacts, developing response strategies, and monitoring their implementation. The researchers emphasize the importance of integrating opportunity management into daily project operations, adopting a dynamic and continuous approach, and ensuring alignment with the project’s goals. Comparing different governance structures reveals how project alliances manage risk and decision-making in practice.

The centralized single-agent model, as examined by Guo et al. (2014), was first implemented in the Yiwan Railway Project by concentrating all authority in the project management headquarters, which was responsible for project oversight and risk management. This model enabled strict control over the project’s risks, particularly those related to complex geological conditions. The project management headquarters also introduced a dynamic risk appraisal system, conducting multiple geological surveys before construction to preemptively address potential hazards. It also maintained authority over contractual adjustments to respond swiftly to emerging risks. While this system effectively managed high-priority risks, it relied on a hierarchical structure that limited flexibility in addressing evolving challenges (Guo et al., 2014).

By contrast, the centralized governance model of the Northern Gateway Toll Road Project followed an alliance-based framework, as described by Guo et al. (2014).

Instead of a single controlling entity, governance was distributed through the Project Alliance Board and the Alliance Management Team, allowing shared decision-making among stakeholders. This model leveraged pain/gain-share mechanisms to align incentives and encourage transparency. Additionally, advanced tools like the Active Risk Manager software facilitated proactive risk identification and mitigation, supporting the project in managing environmental and engineering complexities. This governance structure promoted flexibility, collaboration, and collective problem-solving.

Zou, Wang and Fang (2008) highlight the importance of a structured risk management framework that includes risk identification, assessment, allocation, and continuous monitoring. In alliance based models proactive risk mitigation play a key role in achieving successful project outcomes. According to Guo et al. (2014), the centralized single-agent governance model is best suited for projects where critical risks require strong oversight and control, whereas the alliance-based governance model offers the adaptability and shared ownership needed to navigate complex and dynamic project environments. The choice between these governance models has significant implications for project success.

These findings emphasize the need to align governance structures with project characteristics. Centralized models ensure strong control and risk mitigation, while alliance-based models foster cooperation and adaptability in dynamic settings. Understanding these distinctions allows project leaders to implement governance strategies that best support the demands of large-scale infrastructure projects.

4.1.2 Collaboration and trust

Collaboration is an essential component of successful project alliances and a main theme that is common in all literature. Collaboration particularly addresses the inefficiencies and complexities that often characterize large-scale infrastructure projects. A no-litigation clause in alliance agreements, designed to discourage legal disputes among partners, underscores the importance of fostering trust and open communication. Successful collaboration in project alliances relies on structured

interactions, shared spaces, and integrated decision-making. The alliance thrives on enhanced collaboration, bringing together diverse expertise and perspectives. This is achieved through shared spaces, integrated information systems, and clearly defined decision-making processes, creating an environment where teamwork drives innovation and success. (Lahdenperä, 2006, p. 126)

Moradi et al. (2022) add that structured decision-making processes and clear governance mechanisms play a key role in addressing uncertainties and maintaining project stability. However, despite these advantages, challenges remain. Che Ibrahim et al. (2018) point out that resistance to cultural change, misaligned goals among stakeholders, and the continuous effort required to maintain trust can all impact the effectiveness of project alliances. To address these challenges, they emphasize the importance of strong leadership, clear governance structures, and a shared commitment to collaborative principles.

Ross (2000) explains that the no-litigation clause in project alliancing is meant to keep disputes from turning into legal conflicts. Instead of taking issues to court, as is unfortunately common in the construction industry, project alliance organizations commit to resolving such issues within the alliance. This approach fits the collaborative nature of alliancing, where all parties share risks and rewards and are expected to handle disagreements constructively, keeping the project's goal in mind first and foremost. However, Ross (2000) clarifies that this clause does not of course remove legal rights entirely. If a party deliberately acts against the alliance's interests, known as willful default, legal action remains an option. This ensures that while project alliances encourage trust and collaboration, they also provide a safeguard against serious misconduct.

The Association of Consulting Engineers Australia (2005) adds that legal action is typically permitted only in specific cases. These exceptions are carefully defined to protect the agreement's integrity while discouraging a claims-driven mindset for individual gain. The goal is to create an environment where conflicts are resolved quickly but fairly without relying on expensive and time-consuming litigation. Legal costs are typically included in the project expenses.

Rowlinson et al. (2006) argue that such clauses are only effective when supported by deliberate efforts to build strong relationships, establish trust, and demonstrate proactive leadership. Without these foundational elements, a no-litigation clause alone cannot prevent disputes or foster true collaboration. The project alliance board plays a central role in maintaining trust and addressing conflicts constructively. Similarly, Karlsen et al. (2008) highlight its importance in reducing conflict and continuously strengthening collaboration among stakeholders. Laan, Voordijk, and Dewulf (2011) emphasize that the project alliance model is designed to minimize these opportunistic behaviors within the organization altogether.

The collaboration pyramid model in Figure 4 illustrates how different elements of building and keeping collaboration alive interact. Specific enablers shown on the left support individual aspects, and common enablers on the right reinforce the entire organization. At the foundation of the pyramid is equality, defined as the fair distribution of authority, responsibility, risk, and reward among the project organization. This balance ensures that all team members see themselves as equal contributors, which is essential for building mutual trust and respect. Without these, open communication and collaboration are unlikely to develop at all.

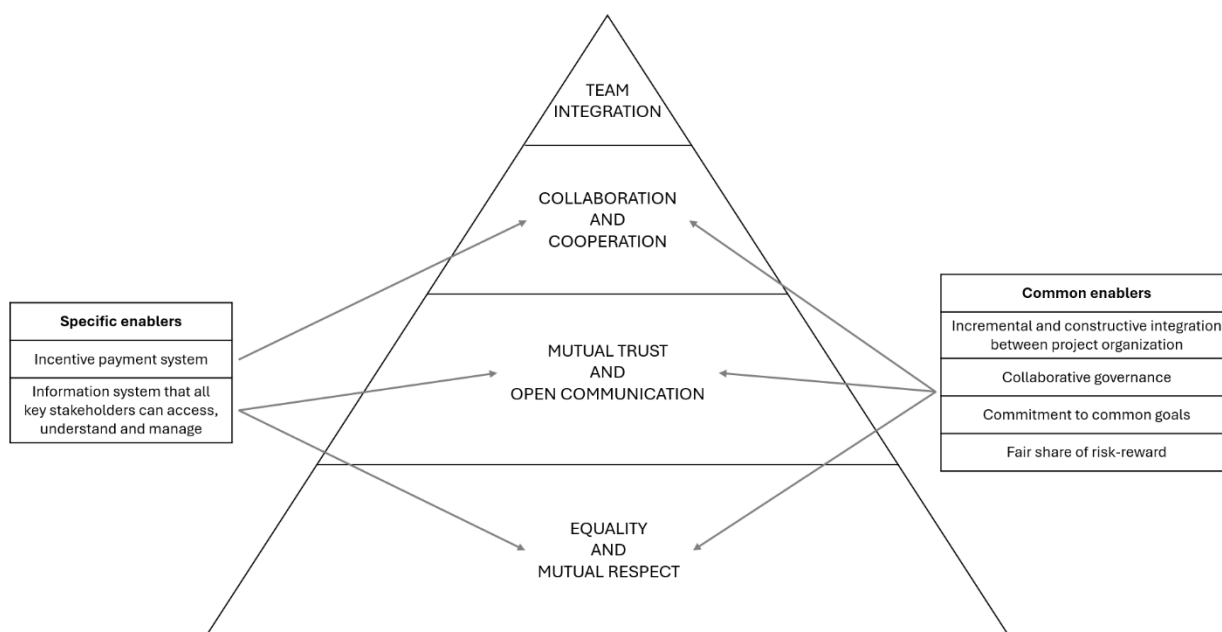


Figure 4. Collaboration pyramid for effective project delivery. Adapted from Moradi et al. (2022).

Collaboration does not happen automatically. It must be built and sustained through structured interactions, shared incentives, and a culture of trust.

Once equality and mutual respect are established, they enable trust and open communication, which are essential for effective collaboration and cooperation. These elements allow project teams to align their efforts, share information, and work toward shared goals. According to Moradi et al. (2022), fair risk-reward distribution, collaborative governance, and a commitment to common objectives are the key enablers in this process. Incentive payment structures further strengthen collaboration by aligning financial rewards with project success, ensuring that everyone remains engaged and committed.

The model truly highlights how collaboration does not emerge naturally but needs to be built through structured interactions and shared incentives. Without equality as a foundation and mechanisms to support trust and collaboration, efforts toward collaboration remain ineffective, noted by Moradi et al. (2022). The pyramid framework demonstrates that successful project alliances require a combination of behavioral, contractual, and financial enablers to sustain teamwork and shared success throughout large projects.

Trust is a recurring theme in project alliance management literature. Laan, Voordijk, and Dewulf (2011) also emphasize that trust develops when shared risks and mutual benefits establish a foundation of respect and understanding among stakeholders. Trust can manifest in several forms, including competence-based trust, which arises from demonstrated expertise, and intentional trust, which stems from shared goals and fair collaboration. To create trust, transparent communication, proximity between alliance teams, and joint administrative systems are essential, as they help break down barriers and reduce the hostility and self-interest often found in traditional contracting approaches (Laan et al., 2011).

Similarly, Kuo and Kuo (2010) emphasize the importance of embedding customer-oriented values into corporate culture to foster mutual trust with teams and align organizational strategies for better collaboration. These values focus on meeting

project needs through continuous quality improvement, responsiveness, and long-term relationship building.

Aaltonen and Turkulainen (2018) highlight the importance of trust and integration among team members in temporary and complex project alliances. Strategies tailored to different phases of the project alliance are key to building these qualities. In the early stages, team-building exercises and informal communication help establish mutual understanding and lay the foundations for collaboration. Workshops can bring teams together to align goals and expectations, while coaching fosters a shared project culture and strengthens teamwork. To keep communication effective throughout the project, surveys and feedback mechanisms help teams identify issues and adjust their working habits as needed, ensuring continuous improvement (European Construction Institute, 2003).

Project alliances must also adapt their collaboration strategies as projects progress and complexities grow. Walker and Lloyd Walker (2019) highlight how collaboration strategies must evolve to meet the challenges of large-scale infrastructure project alliances. In the early phases, models like the design alliance framework effectively manage uncertainties and foster innovation by integrating designers, clients, and stakeholders early in the process. This approach emphasizes trust building, iterative problem-solving, and a culture of openness, allowing shareholders to explore solutions without fear of blame. Liu et al. (2023) explore the governance structures that underpin collaboration in mega infrastructure projects. They identify three critical mechanisms: contractual governance, which defines roles, responsibilities, and risk-sharing arrangements; relational governance, which emphasizes trust and shared values; and administrative governance, which aligns stakeholders through authoritative policies and external priorities. These mechanisms work together to address project complexities, enabling project teams to adapt to varying levels of complexity and achieve sustainable collaboration.

Integrated work environments further enhance collaboration by creating spaces for continuous interaction. The intensive big room process, presented by Alhava, Laine, and Kiviniemi (2015), provides a transformative framework for enhancing

collaboration in construction projects. By integrating frameworks such as building information modeling, integrated concurrent engineering, and lean principles, this approach can foster co-creation among multidisciplinary teams and promotes proactive collaboration.

Alhava et al. (2015) mention the Big Room as an important tool for increasing togetherness. It is a collaborative workspace designed to enhance teamwork, communication, and decision-making. It brings together designers, clients, and contractors in a shared physical or virtual environment where project-related issues can be addressed in real time. In the Rajamäki project, the Big Room was used to improve collaboration and address design challenges during the construction of the Rajamäki Swimming Hall in Finland. Weekly facilitated sessions brought key stakeholders together in a shared space, where large visual displays and digital modeling tools helped streamline communication and decision-making. This structured approach minimized misunderstandings, ensured alignment with client objectives, and kept the project on track while managing cost reductions and a tight schedule (Alhava et al., 2015).

Ultimately, strong project alliances depend on commitment, trust, and collaboration. Cheng et al. (2004) highlight participative management and decentralized authority as key to fostering cooperation. Qian et al. (2021) emphasize balancing cooperation and competition, with trust mitigating power imbalances. Aligning interests and collaborative strategies enhances outcomes and supports effective governance.

4.1.3 Error management, learning, and continuous improvement

Effective error management, learning, and continuous improvement are critical to the success of project alliances, particularly in high-stakes infrastructure projects where resilience and adaptability determine outcomes. Love and Matthews (2023) propose an error mastery framework for long-term organizational improvement. Based on a qualitative analysis of an eight-billion-dollar transport mega project alliance, their research highlights the pivotal role of open communication and psychological safety in detecting and resolving errors. Informal practices, such as worksite and office

discussions, and coordination meetings, facilitate knowledge sharing and allow teams to respond to issues more efficiently. However, the lack of formalization in these practices can prevent organizations from fully benefiting from the insights gained during such discussions. Recognizing errors as opportunities rather than failures is key to fostering a culture of continuous learning and resilience.

Love and Matthews's (2023) proposed error mastery framework emphasizes three key benefits. First, reducing stress to support individual well-being; second, enhancing risk anticipation through vigilance; and third, fostering adaptability through continuous learning. Project alliance practices like co-location and iterative design exemplify these principles, helping to minimize errors and build resilience by integrating the perspectives of diverse stakeholders early in the process. Yet, challenges such as production pressures and inconsistent subcontractor engagement can undermine these efforts, highlighting the need for consistent practices across the alliance to ensure all parties are equally committed to fostering a culture of learning and improvement. (Love and Matthews, 2023.)

Traditional approaches to error prevention often fail in complex project environments, limiting learning and adaptability. While Love and Matthews (2023) emphasize psychological safety and communication in error management, Lahdenperä (2017) also critiques traditional error prevention approaches in project management. He argues that rigid error prevention methods, relying heavily on strict controls and detailed planning, often create an environment where mistakes are hidden rather than addressed openly. This lack of transparency not only limits learning opportunities but can also lead to inefficiencies, increased project costs, and delays. These rigid approaches fail to consider the complexity and unpredictability of large-scale projects, where adaptability and openness are essential to addressing evolving challenges effectively.

To address these limitations, Lahdenperä (2017) advocates for integrating error management deep into project alliances. He emphasizes the importance of fostering a culture where errors are seen as opportunities for learning rather than as failures. Strategies such as open communication, shared accountability, and iterative problem

solving are essential for ensuring that mistakes are reported and analyzed constructively. Practical measures, including structured lessons learned sessions, real-time error reporting tools, and cross-disciplinary discussions promote collaboration and continuous improvement.

Moreover, psychological safety, where team members feel confident raising concerns without fear of blame, is fundamental to sustaining error management. Methods like this enable alliances to transition beyond rigid error prevention, embracing a proactive, learning-oriented culture that supports long-term success. A proactive and learning-oriented approach to error management, constructed based on the literature of Lahdenperä (2017) as well as Love and Matthews (2023), is illustrated in Figure 5, highlighting key strategies for fostering continuous improvement in project alliances.

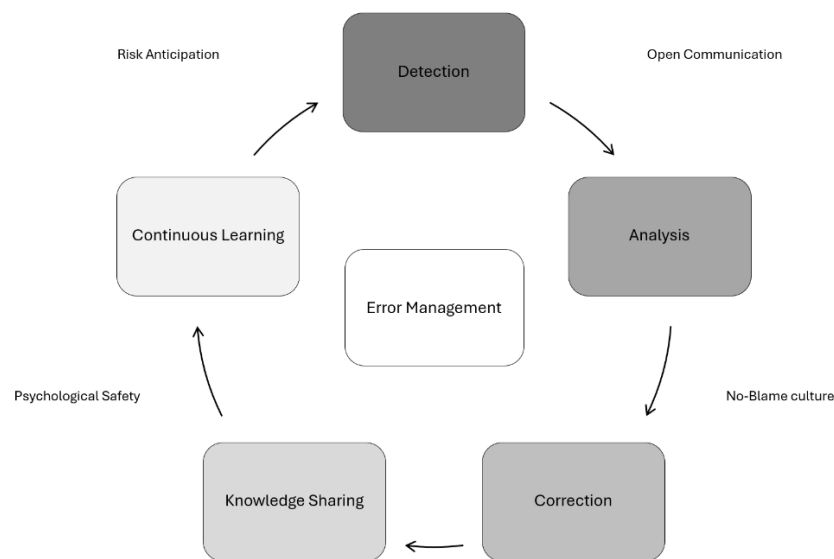


Figure 5. Fostering continuous improvement on error management.

Building on these perspectives, research highlights how strict control-based approaches can hinder innovation and suppress organizational learning. Love et al. (2022) critique how traditional error prevention approaches can inadvertently hinder innovation. Strict controls and zero-tolerance policies often create a culture of blame,

where mistakes are hidden to avoid repercussions. This aversion to openly addressing errors limits learning potential and exacerbates recurring issues such as rework, which escalate costs and delays. According to Love et al. (2022), strategies like strict controls and zero-tolerance policies are particularly ill-suited for environments characterized by high complexity and uncertainty, like mega projects, where rigid methods fail to accommodate dynamic conditions.

To counter these challenges, Love et al. (2022) propose complementing error prevention with proactive strategies that acknowledge the inevitability of mistakes. Creating psychologically safe environments where team members can discuss errors without fear of blame is central to fostering open dialogue. They also emphasize the importance of shifting focus from eliminating mistakes to understanding systemic processes and celebrating successes. By analyzing what contributes to success, organizations can develop mechanisms that not only address errors but also strengthen their systems. Coaching that bridges individual learning with organizational practices further supports the development of sustainable error handling mechanisms aligned with the dynamic nature of large-scale projects.

Shifting from error management to success-oriented learning enhances resilience and adaptability. To contribute to learning and continuous improvement, Love et al. (2021) advocate for adopting a Quality II mindset, inspired by Safety II principles, as a transformative approach to error management. Safety II shifts the focus from preventing failures to understanding what enables success. Instead of just eliminating errors, it emphasizes learning from everyday work, adaptability, and resilience.

Quality I, on the other hand, is built around rigid procedures, error prevention, and the idea of getting everything right the first time. It promotes compliance and control, often measuring quality by the absence of mistakes, with goals like zero defects or zero rework. While well-intentioned, this approach can discourage open discussion about errors and limit opportunities for learning. Quality II moves away from that by focusing on adaptability, collaboration, and learning from what goes right. It treats errors not as personal failures, but as moments to learn and improve.

Strategies like preconstruction site walks, visual management tools, and involving site supervisors early in the design phase help teams proactively address potential issues before they escalate into costly rework. By integrating lean tools, leadership-driven coaching, and aligning human and organizational factors, the Quality II framework fosters resilience and continuous improvement. Continuous improvement in project alliances is sustained through structured learning mechanisms and collaborative knowledge-sharing frameworks (Love et al. 2021).

Lahdenperä (2017) underscores the importance of collaborative frameworks in facilitating the continuous exchange of knowledge and refinement of processes within alliances. Joint workshops, structured feedback loops, and cross-disciplinary problem-solving sessions ensure that lessons learned are not only captured but actively applied to ongoing and future projects. By incorporating these practices into the alliance's operational strategies, organizations can foster a culture of shared expertise and continuous growth.

Learning in project alliances operates on two complementary levels. Single-loop learning allows for incremental improvements by addressing specific challenges and optimizing existing practices. Meanwhile, double-loop learning goes further by encouraging teams to reflect on and challenge underlying assumptions, norms, and processes. This transformative approach ensures alliances are not merely responding to immediate issues but are also building the capacity for long-term innovation and adaptability. (Lahdenperä, 2017.)

Leveraging collaborative networks and integrating innovation capabilities can build long-term success in project alliances. These observations align closely with the capabilities highlighted by Zhu et al. (2018), particularly their focus on network-related and innovation-related capabilities as essential for project success. Network-related capabilities emphasize building and managing relationships and resources across a project network to ensure seamless collaboration. Innovation-related capabilities, by contrast, foster iterative problem-solving, experimentation, and the creation of new knowledge throughout the project lifecycle. Similarly, Lahdenperä (2017) emphasizes that leveraging collaborative networks and cultivating a culture of

iterative learning are critical to driving innovation and improving outcomes in alliance projects. As project management evolves, digital tools will further shape the landscape of learning and continuous improvement.

These perspectives align with Walker and Lloyd Walker (2019), who also emphasize the transformative role of advanced technologies and evolving demands in project management towards 2030. They highlight that as routine tasks become automated, project managers will need to focus more on creativity, collaboration, and problem-solving, with digital tools and artificial intelligence essential for managing complex systems. By embedding collaboration, learning, and innovation into everyday project activities, teams in project alliances are better equipped to manage the complexities of these projects and foster the continuous development of both individual and collective skills (Hietajärvi, Aaltonen & Haapasalo, 2017a).

4.2 Tools and frameworks for managing project alliances

Project alliances rely on structured tools and frameworks to enhance collaboration, manage complexity, and ensure common goals among stakeholders. Tools like the Alliance Team Integration Performance Index (ATIFI) have been introduced to assess team integration and identify areas for improvement in project alliances (Che Ibrahim et al., 2016, pp. 4–6). This tool evaluates critical factors such as leadership, trust, collaboration, communication, and the alignment of goals among team members from different organizations working together on a project. Such tools are especially valuable in large-scale construction projects, where effective collaboration and adaptability are essential for success. Che Ibrahim et al. (2016) have validated ATIFI's reliability on a large motorway project, which further supports its role in optimizing team dynamics and project outcomes.

Developed specifically for alliance projects, Che Ibrahim et al. (2016, p. 6) explain how ATIFI provides a framework for contractors, designers, owners, and other stakeholders to collaborate seamlessly. By pinpointing strengths and weaknesses in team dynamics, the tool offers actionable insights to enhance coordination, resolve challenges, and strengthen collaboration. For example, teams can use ATIFI to

benchmark performance, develop strategies to improve communication, align goals, and build trust across all participants. By providing clear metrics, the tool supports ongoing progress monitoring and enables managers and leaders to prioritize actions that drive meaningful improvements. This emphasis on structured collaboration also complements approaches like future perfect thinking, which focus on adaptability and goal alignment to navigate evolving project challenges.

ATIPI's ability to enhance team performance was evident in a 244-million-dollar motorway project in New Zealand. By benchmarking team integration and guiding targeted improvements, the tool helped foster a collaborative and transparent working environment. Its practical value was validated through structured interviews with thirteen experienced alliance practitioners, who confirmed its relevance in real-world projects. Leaders who decide to use ATIPI's insights can drive collaboration and significantly improve project outcomes (Che Ibrahim et al., 2015). Similarly, strategies such as future perfect thinking demonstrate how innovative approaches can address uncertainty and complexity in large-scale projects.

Beyond individual tools, structured frameworks play a vital role in managing performance and ensuring project alliances operate effectively. The success of alliance projects relies heavily on structured frameworks for collaboration, such as the use of key result areas and key performance indicators to track progress and optimize team integration. The Project Alliancing Practitioners' Guide (2006) notes that in an Australian alliance project, these performance metrics were embedded within governance structures to enhance transparency, improve trust, and ensure stakeholders remained aligned with project objectives. By integrating key result areas with structured tools like ATIPI, project teams in project alliances strengthened their decision-making and adaptability. Similarly, Kadefors et al. (2024) highlight how studies show alliance contracts have gradually replaced traditional procurement models by emphasizing flexibility, trust, and shared incentives. The structured learning approach supports models like ATIPI, ensuring that alliance projects benefit from tested best practices and avoid previous inefficiencies.

Future perfect thinking provides a fresh approach to managing large-scale projects under conditions of uncertainty. Future perfect thinking emerged as a compelling strategy for managing large-scale construction projects characterized by uncertainty, tight deadlines, and evolving challenges. Pitsis et al. (2003) define how this approach focuses on envisioning the ideal project outcome and working backward to identify the steps needed to achieve it. Successfully applied in Sydney's Waterways Project for the 2000 Olympics, it replaced rigid pre-planning with iterative problem-solving, fostering adaptability and innovation. Key practices included collaborative workshops to align goals, rehearsing end-game scenarios, and cultivating a best-for-project culture. These methods allowed project teams to remain flexible, respond effectively to unforeseen conditions, and maintain focus on shared objectives (Pitsis et al., 2003).

The success of future perfect thinking depended on a collaborative alliance structure with shared risks and rewards and a no-blame culture that encouraged transparency and cooperation. This approach led to technical and cultural innovations, including advancements in tunneling technology and materials handling to address real-time geotechnical challenges, reducing delays and improving safety. Environmental gains, such as decreased excavation impacts and lower noise pollution, further demonstrated its adaptability. By aligning stakeholder efforts around a shared vision, future perfect thinking reinforced the value of flexibility, structured collaboration, and continuous problem-solving in achieving success in complex construction projects. (Pitsis et al., 2003.)

The Melbourne CityLink Project successfully implemented a similar approach but only called it future-looking governance, that integrated iterative scenario planning and continuous shareholder engagement. By prioritizing flexibility over rigid pre-planning, the project team-maintained agility in managing risks and aligning stakeholders, reinforcing the importance of structured collaboration tools like future perfect thinking. (Ross, 2000.)

Che Ibrahim et al. (2018) mention how collaborative learning environments further enhance integration by creating spaces for co-location and shared experiences. These environments encourage team members to engage deeply with one another and

leverage existing relationships to promote innovation and cohesion. Practical everyday tools like the big room and standardized model views further support collaboration and coordination in project alliances. The big room is a key tool in project alliances, providing a structured workspace where all stakeholders collaborate in real time. It enhances teamwork, communication, and decision-making by bringing together designers, clients, and contractors in a shared physical or virtual space. This setup facilitates fast problem-solving, reduces rework, and improves information flow, ensuring project teams remain aligned throughout the project lifecycle. (Alhava et al., 2015.) Another essential tool for project alliances and the construction industry as a whole is standardized model views. They simplify complex design information, allowing organizations to make informed decisions and actively contribute as the project is developing. By providing a clear, consistent representation of project details, standardized model views minimize misinterpretations, improve transparency, and support efficient project coordination (Alhava et al., 2015).

Beyond created tools, relationship management frameworks play a role in making them work in project alliances. According to Davis and Love (2011, p. 450) a three-phase model that is often used in alliances gives a structured approach to developing and maintaining relationships during the project. The assessment phase ensures that alliance partners are selected based on shared values and strategic alignment. The commitment phase establishes trust, aligns incentives, and facilitates collaboration. The endurance phase focuses on sustaining the built relationships through continuous learning and problem-solving.

By integrating structured tools like ATIPI, future perfect thinking, the big room, and standardized model views with the management frameworks project alliances can address complexity more easily, improve decision-making, and foster a culture of innovation. These frameworks enable teams to anticipate challenges, maintain flexibility, and align stakeholder efforts, which are all crucial elements in delivering successful large-scale infrastructure projects.

5 ANALYSIS AND DISCUSSION

This chapter discusses the key findings, identifies research gaps, and suggests recommendations for interesting future research. This study set out to explore how leadership and management are presented in project alliance management literature in the construction industry and what narratives shape our understanding of it. While project alliances are widely credited for improving collaboration and risk sharing in large projects, leadership has received surprisingly little attention. Most research has focused on governance and contracts, yet it can be argued that leadership is what essentially drives collaboration, trust, and decision making in these complex environments.

This thesis contributes to both academic research and practical project management by highlighting the role of leadership in project alliances. A clearer understanding of its impact can help improve how large projects are managed.

5.1 Interpretation of the key findings

The literature on project alliances in the construction industry has largely emphasized collaboration, trust, and governance structures. While these are essential, much of the research focuses on structural and contractual elements rather than the human aspects that influence alliance success. Governance models define roles, responsibilities, and risk-sharing mechanisms, but they do not fully represent how leadership competencies shape engagement, trust, and adaptability. Governance provides the framework, but leadership and management determine how effectively it functions in practice. Yet, leadership research on project alliances in the construction industry hardly exists, leaving its true impact largely unexplored.

To clarify these dynamics, key findings were organized into a summary table in Table 3, highlighting recurring themes and contradictions in project alliance management. This structured comparison reveals how leadership, governance, and collaboration shape project outcomes. Each theme concludes with a summary of key insights, ensuring a clear synthesis of the literature and its practical implications.

Table 3. Summarized interpretations of the key findings.

Theme	Key findings	Patterns and contradictions	Key insight
Risk, reward, and performance management	Project alliances use pain/gain-share models to align incentives, ensuring commitment from all parties. These models reduce confrontational behavior and enhance accountability (Guo et al., 2023). Long-term value creation should also be a priority alongside cost and time efficiency, as incentives might otherwise push projects to focus only on short-term success (Hietajärvi et al., 2017a). Balancing cooperation and competition is essential for maintaining engagement and efficiency in alliances (Qian et al., 2021).	While shared risk and reward models are widely recognized for improving performance, debate remains on which incentive structures work best in different alliance contexts. Additionally, stakeholder collaboration is necessary, but tension exists between fostering cooperation and maintaining competitive efficiency.	Aligning incentives through shared risk and reward structures clearly strengthens collaboration and reliability. A balance between cooperation and competition is key to optimizing performance in project alliances. Differentiating the best mechanisms work on which type of projects would be beneficial. Also understanding the factors in play between the best mechanisms and leadership practices could aid future projects.
Collaboration and trust	Trust, governance, and cultural alignment are fundamental to collaboration in alliances. No-litigation clauses work best when backed by proactive leadership and clear relational goals (Rowlinson et al., 2006). Psychological safety, structured feedback mechanisms, and learning-oriented error management reduce risks and improve performance (Love & Matthews, 2023). Leadership plays a crucial role in fostering trust, yet research tends to focus more on governance structures than leadership styles (Beddoes-Jones, 2011).	Trust is universally regarded as critical, yet some research argues that formal governance mechanisms play an equally important role in sustaining collaboration. While psychological safety is widely emphasized, some studies suggest stricter control mechanisms are needed to prevent recurring mistakes. Leadership is acknowledged as essential, but alliance research tends to prioritize governance over leadership styles.	Trust and governance must complement each other to create a resilient and cooperative alliance environment. A learning-oriented approach to error management enhances adaptability and project outcomes. Leadership remains an underexplored but crucial factor influencing collaboration and trust. Learning-oriented culture and psychological safety can only arise from suitable leadership methods.
Error management, learning, and continuous improvement	Error management should prioritize learning over punishment. Psychological safety fosters adaptation and reduces costly rework (Love & Matthews, 2023). Structured tools like ATIPi enhance team integration, while digital platforms improve communication and decision-making (Che Ibrahim et al., 2015). However, implementing these tools effectively requires skilled leadership. Leadership, though fundamental to alliance success, is often overshadowed by discussions on governance and structural tools (Beddoes-Jones, 2011).	Research highlights the benefits of structured integration tools but applying them consistently across different alliance projects remains a challenge. Leadership is recognized as a key factor in project success, but research focuses way more on governance and managerial control than on leadership styles.	A learning-focused error management approach reduces risks and improves adaptability. Strategic tools and digital platforms can enhance alliance performance, but their successful implementation requires strong leadership. Leadership plays a critical role in fostering collaboration, trust, and overall project outcomes. Expanding future research to leadership practices could greatly aid the challenges with consistency on the processes.

The research question of this thesis was: What are the leadership and management narratives in project alliance literature in the construction industry? The review indicates that leadership is frequently treated as a background element, often mentioned in relation to collaboration but rarely examined on its own terms. Although governance receives detailed attention through models, contracts, and frameworks, leadership is less explored, despite its critical role in shaping project culture, stakeholder alignment, and the everyday functioning of the alliance. Leadership and management influence how governance structures work in practice and how effectively the alliance responds to complexity and uncertainty.

Collaboration is widely recognized as a key factor in successful project alliances. Research highlights how shared incentives, open communication, and integrated teams improve efficiency and outcomes. However, balancing cooperation and competition remains a challenge. Che Ibrahim et al. (2017) note that contractors may prioritize cost efficiency, while designers focus on innovation, creating tensions that disrupt collaboration. Lahdenperä (2012) similarly points out that especially shareholders accustomed to traditional competitive models struggle to adapt to the openness required in alliances. These issues illustrate the difficulty of aligning diverse priorities within a shared project structure.

Trust is another dominant theme in literature. It is widely seen as a foundation for collaboration, reducing transaction costs, improving decision-making, and fostering better stakeholder relationships. However, trust does not emerge automatically. It must be built through transparent communication, shared spaces, and joint decision-making structures. Much of the literature assumes that trust is almost a given rather than an active process requiring leadership and continuous reinforcement.

Governance structures, particularly risk and reward models, are central to project alliancing. Pain/gain-share models ensure that all parties are invested in collective success, discouraging oppositional behaviors and improving accountability. While most research agrees that aligned incentives improve performance, there is ongoing debate about which incentive models work best across different alliance structures. The literature often overlooks the risks of rigid governance models that may hinder

adaptability, especially in complex and fast-changing project environments. Governance structures play a central role in shaping collaboration and risk management strategies within major infrastructure projects. Guo et al. (2014) compare two governance models, the centralized single-agent approach in the Yiwu Railway Project in China and the alliance model used in New Zealand's Northern Gateway Toll Road Project, to explore their effectiveness in managing risks and fostering collaboration.

While governance and trust are frequently studied as separate topics, they should be seen as complementary. The no-litigation clause, for example, is most effective when paired with proactive leadership and clear relational goals. Without leadership to foster a collaborative environment, governance mechanisms alone cannot prevent disputes. Research often treats governance and trust as independent forces, failing to recognize how they function together in practice. Another shift in project alliancing is the move from cost-focused success metrics to long-term value creation. While many researchers advocate prioritizing sustainability and stakeholder benefits, traditional cost efficiency models continue to dominate industry practices. This creates a tension between immediate cost control and future-oriented project value. Misaligned incentives often lead teams to prioritize project completion over sustainability, reinforcing short-term thinking even as industry discussions push for long-term benefits.

Error management and continuous improvement are also recurring themes. Many studies support learning-oriented approaches, where teams focus on adaptation rather than punishment, reducing costly rework. Psychological safety and structured feedback mechanisms allow teams to identify mistakes early and prevent recurring issues (Love and Matthews, 2023) However, Lahdenperä (2017) notes that research shows that strict control mechanisms are necessary in high-risk environments, they highlight the tension between flexibility and oversight. This reflects a broader issue in the literature. While adaptability is encouraged, governance structures often remain too rigid to allow true flexibility.

Lahdenperä (2017) argues that rigid project management approaches do not account for the complexity and unpredictability of large-scale projects. Adaptability is essential for addressing evolving challenges, yet strict control mechanisms often make it difficult for teams to respond effectively to unexpected issues. Love and Matthews (2023) emphasize that psychological safety and transparent communication allow teams to resolve problems more efficiently, reducing rework and delays. A more flexible approach to error management, prioritizing learning and adaptation, is necessary for maintaining resilience in dynamic projects.

Love et al. (2022) further argue that strict control mechanisms and zero tolerance policies are particularly unsuited for complex environments like mega projects. These require adaptive strategies rather than rigid, standardized approaches. Creating psychologically safe environments, where teams can discuss errors without fear of blame, fosters open dialogue and continuous improvement. Love et al. (2022) also stress shifting focus from eliminating mistakes to analyzing what drives success, ensuring that lessons learned lead to stronger project outcomes rather than simply avoiding failure. This supports an idea to shift focus on research from governance to management, and perhaps all the way to the leadership practices.

By integrating lean tools, leadership-driven coaching, and human-centric management, the Quality II framework supports resilience and continuous improvement (Love et al., 2022). This approach, particularly effective in alliance projects, enhances team learning and adaptability. Aligning this framework with organizational goals ensures that improvement processes become part of the alliance culture rather than just external performance measures.

Despite the emphasis on governance and collaboration, leadership remains an underexplored aspect of research on project alliances in the construction industry. While much of the literature discusses structural frameworks, it often overlooks how leadership directly impacts collaboration, trust, and project success. This lack of focus on leadership is particularly evident in research on collaborative learning environments, which emphasize co-location, shared experiences, and team integration. Che Ibrahim et al. (2018) highlight how collaborative networks build trust and

knowledge-sharing, creating synergy across different teams. However, leadership plays a crucial role in ensuring that these environments function effectively. Without strong leadership reinforcing transparency, alignment, and inclusivity, collaborative systems can easily become fragmented. The literature often assumes that collaboration happens naturally rather than acknowledging that it must be actively maintained.

Hietajärvi et al. (2017b) categorize integration mechanisms into three main areas: formal governance mechanisms, organizational and relational structures, and technological systems. Formal governance mechanisms, such as goal-setting, performance tracking, and incentive models, provide structure and motivation but require flexibility to remain effective. Organizational and relational arrangements, including co-located teams and cross-functional groups, foster collaboration and trust. Technological systems, such as project banks, visual scheduling tools, and digital communication platforms, improve real-time decision-making and coordination. When combined, these elements create a framework for adaptability and collaboration, enabling project teams to manage uncertainty more effectively.

Despite increasing recognition of the need for adaptability, the literature continues to prioritize governance and collaboration over leadership. Governance models define project structures, but leadership ultimately determines how well these structures function in practice. Future research should focus not only on governance frameworks but also on how leadership drives engagement, decision-making, and team cohesion, offering a more complete understanding of alliance effectiveness. A balanced approach is necessary: one that integrates governance with leadership strategies that foster collaboration and adaptability.

5.2 Identified research gaps

A noticeable bias in the narratives of the project alliance literature is the strong emphasis on tools and frameworks designed to enhance trust, collaboration, and structured agreements during the projects. While these elements are essential, there is only a limited amount of research on what makes a leader truly effective in a project alliance, particularly in the construction industry. Leadership plays a central role in

ensuring that these tools are not just implemented but leveraged in ways that maximize their benefits. However, existing studies rarely address which leadership attributes and approaches contribute most to success. There are many leadership theories, the most suitable ones for project alliances could be authentic, transformational and adaptive approaches, yet there is little discussion on which approaches are best suited for project alliances and how leadership influences project outcomes. Leadership requires the ability to motivate teams, align objectives, take calculated risks and create an environment where collaboration and innovation thrives under real-world pressures.

Another gap in literature is the lack of comparison between project alliance leadership and other fast-paced leadership settings, such as startup management and the formation of other new organizations. Both startups and project alliances require leaders who can align diverse stakeholders, manage uncertainty, and take control of risks. Despite these shared challenges, research on project alliances tends to focus more on governance and collaboration rather than on leadership approaches. Understanding what type of leaders are best suited for these complex environments and how their leadership style influences the success of a project alliance would help shift the conversation from the great tools and structures already in place to the human factors that ultimately can determine their true effectiveness.

5.3 Leadership in project alliances: proposal for closing the gap

Leadership is often mentioned in project alliance research, but it almost never it is the main focus in its true sense. Instead, research tends to emphasize different governance structures, collaboration tools, and risk-sharing models assuming leadership naturally supports these mechanisms effectively. But leadership is not only about overseeing processes. Leadership is also about creating and facilitating just the right conditions for collaboration, trust, and long-term success.

Despite its clear importance, research on how leadership drives project alliance success in the construction industry is clearly insufficient. What leadership styles work best? How do leaders influence integration, decision-making, and innovation in these complex projects? These are interesting questions that in my opinion need answers.

This section explores key leadership theories that could strengthen project alliance leadership and management and outlines areas where research should expand to close this gap.

Leadership plays a pivotal role in the success of project alliance management in the construction industry, which depends on trust, collaboration, and shared accountability among diverse stakeholders. Authentic leadership offers a value-driven approach that aligns seamlessly with the core principles of project alliances, such as fostering trust, commitment, and open communication. According to Beddoes Jones (2011), truly authentic leaders create environments where stakeholders can effectively collaborate, align objectives, and minimize conflicts. Authentic leaders demonstrate self-awareness, internalized moral perspective, balanced processing, and relational transparency, creating an environment of trust and ethical governance (Northouse, 2021, p. 308). This leadership approach emphasizes adaptability while remaining grounded in ethical decision-making, making it particularly valuable for navigating the complexities of modern projects. Furthermore, the alignment of authentic leadership with corporate social responsibility and sustainable project management underscores its relevance in fostering long-term value and ethical governance within project alliances in the construction industry. Authentic leadership is rooted in strong values and trust, making it a natural fit for project alliances. Practical empirical research could involve case studies comparing projects led by leaders with strong authentic leadership traits and those lacking these qualities, examining their impact on collaboration and project outcomes (Beddoes Jones, 2011).

As project environments grow increasingly complex, leadership that fosters trust, collaboration, and ethical governance will remain essential, providing valuable insights for advancing project alliance models (Beddoes Jones, 2011). Another promising leadership approach to examine in future research is adaptive leadership, which shifts the focus from leader traits to how leaders help others navigate uncertainty and change. Adaptive leadership is particularly suitable for project alliances in the construction industry, where leaders must motivate people to address complex, evolving challenges rather than only providing tools and solutions (Northouse, 2021, p. 392). Research in this area could examine how exactly project alliance leaders can create an environment where team members are encouraged to experiment, take risks,

learn, and adjust strategies as large projects unfold. Understanding the balance between maintaining control and empowering teams to solve problems by themselves could provide valuable insights for leadership in high-stake collaborative environments.

Understanding leadership in project alliances requires examining how leaders lead integration and collaboration across complex project environments. Leadership plays a critical role in integration practices, ensuring that project teams can overcome challenges and work cohesively toward shared objectives. Che Ibrahim et al. (2018) identify two key indicators of successful integration in alliances: task and relationship-oriented behaviors, which balance task completion with maintaining strong relationships to foster collaboration. Without strong leadership, even the best integration strategies remain on the surface-level, struggling to create real impact into real collaboration and efficiency of an organization.

One more leadership approach that should be examined, but is not yet utilized, is transformational leadership in project alliances in large construction projects. Transformational leaders inspire and motivate their teams beyond bonus incentives by fostering a shared vision and emphasizing long-term goals (Northouse, 2021, p. 262). While transformational leadership is widely studied in corporate and political settings, its application according to the literature in project alliances in the construction industry remains largely theoretical or non-existent. Research could investigate how transformational leadership influences project alliance dynamics, particularly in terms of motivation, conflict resolution, and aligning diverse stakeholders toward a common goal. Future research could focus on how specific leadership approaches influence project alliance outcomes or other milestones.

Also, another fascinating area to explore is how project alliance leadership compares to leadership practices in other high-uncertainty environments, such as startups and fast-paced entrepreneurial ventures. Both require leaders who can align diverse stakeholders, manage uncertainty, and foster collaboration in rapidly changing conditions. Research has not really explored the similarities between the construction industry and other business sectors, particularly in terms of leadership dynamics.

Identifying commonalities could reveal the similarity in challenges and practices that effective leaders should adopt in the construction industry. This perspective could connect sector-specific findings with leadership theories that apply across industries. Gaining insight into these leadership dynamics could reveal which qualities and approaches are most effective in project alliances in the construction industry.

Another important research direction is how different leadership styles impact the practical use of project alliance tools and frameworks. While much of the existing research focuses on these governance structures, trust-building mechanisms, and risk-sharing models, there is little analysis of how leadership practices influences the successful implementation of these systems. Future studies could examine which leadership styles, such as transformational, authentic, or adaptive leadership best support collaboration, problem-solving, and innovation in project alliances. A deeper analysis after empirical study could reveal which leadership styles align best with high-risk, high-uncertainty environments like project alliances and why not startups as well, providing meaningful insight for both theory and practice.

Northouse (2021) highlights that leadership plays a critical role in shaping organizational effectiveness by influencing decision-making, performance management, and the alignment of strategic goals within teams and organizations. While governance structures ensure accountability, the ability to motivate teams, build a strong alliance culture, and handle challenges beyond predefined frameworks is just as important in my experience. Investigating how leadership shapes team culture, maintains drive, and supports continuous improvement in large and long projects could provide practical guidance for both researchers and the industry. By shifting the research focus more on leadership and management as driving forces behind project alliance success, future research can help bridge the gap between theoretical governance models and the real-world leadership skills needed to make them work even more effectively.

6 CONCLUDING REMARKS

Project alliance leaders in the construction industry must develop a comprehensive understanding of the history, present landscape, and the future direction of project management. The evolution of project alliances has been shaped by the need for improved collaboration in complex, high-risk environments, and today, project alliances continue to refine their structures to enhance efficiency. Looking ahead, the success of these models might depend on how well leaders integrate governance frameworks and human-centered leadership approaches. This thesis demonstrates how leadership plays a central role in the success of project alliances, particularly in fostering collaboration, managing complexity, and aligning diverse stakeholders. While existing literature often focuses on governance structures and contractual arrangements, this review highlights how human-centered leadership practices are potentially vital to making these structures effective and ensuring strong project performance. Analysis identified three critical leadership themes: risk, reward, and performance management; collaboration and trust; error management, learning, and continuous improvement.

To strengthen future research and practice, leadership should be repositioned as the driving force of project alliance success, not just as a supporting function to governance. By doing so, both researchers and practitioners can better understand how to build resilient, adaptive, and high-performing project organizations in increasingly complex environments. Mastering the tools and frameworks designed to support project alliances are important, however, these structures alone do not guarantee success. Leaders must recognize that the effectiveness of these tools ultimately depends on how they are applied in real project environments, where shifting dynamics, competing interests, and human relationships play a defining role. Northouse (2021) emphasizes that leadership is more than just structure, it is about guiding people through uncertainty, fostering collaboration, and ensuring strategic alignment within complex organizations. In project alliances in the construction industry, this means leaders must actively shape engagement and adaptability, ensuring that structured governance does not become restrictive and inefficient. This perspective reinforces the idea that in project alliances, leadership must go beyond enforcing governance and actively shape how teams engage, adapt, and perform.

Beyond technical and structural knowledge, project alliance leaders need a deep understanding of the human aspects of leadership. Managing complex projects means bringing together professionals from diverse backgrounds, industries, and expertise areas under a shared goal, which requires adaptability, emotional intelligence, and the ability to foster a culture of trust and collaboration. As Northouse (2021) points out, effective leadership requires adjusting leadership styles to fit the needs of the situation whether it involves taking control in moments of crisis or stepping back to empower teams when conditions allow. In project alliances in the construction industry, leaders must navigate this balance carefully, ensuring that both structured governance and flexible, people-centered leadership contribute to long-term project success. Authentic, transformational, and adaptive leadership approaches should be studied and considered, allowing leaders to inspire teams while adjusting their strategies to meet evolving project needs.

Foremost, this thesis draws attention to the theoretical and practical implications of rethinking how leadership and management practices are understood in the context of project alliances in the construction industry. The best project alliance leaders are those who are not only suited but also qualified to create environments where professionals can work together effectively, while keeping sight of the project's objectives and the shared purpose that gives their work meaning. Of course, all while remembering that even the largest and most meaningful projects should not come at the expense of everything else that matters in life.

7 REFERENCES

- Aaltonen, K., & Turkulainen, V. (2018). Creating relational capital through socialization in project alliances. *International Journal of Project Management*, 36(8), 1391–1406. <https://doi.org/10.1016/j.ijproman.2018.07.003>
- Association of Consulting Engineers Australia. (2005). Alliance contracting. Retrieved from <http://alliancecontractingelectroniclawjournal.com/wp-content/uploads/2017/04/Association-of-Consulting-Engineers-Australia-ACEA-2005-%E2%80%98Alliance-Contracting%E2%80%99.pdf>
- Alhava, O., Laine, E., & Kiviniemi, A. (2015). Intensive big room process for co-creating value in legacy construction projects. *Journal of Construction Engineering and Management*, 141(11), 04015039. [https://doi.org/10.1061/\(ASCE\)CO.1943-7862.0001024](https://doi.org/10.1061/(ASCE)CO.1943-7862.0001024)
- Beddoes-Jones, F. (2011). Authentic leadership: The 21st-century imperative? Leadership Development Research. Retrieved from https://www.cognitivefitness.co.uk/archive_site/documents/Authentic%20Leadership%20-%20MBA%20Journal%20April%202011.pdf
- Bennis, W. G., & Nanus, B. (1985). *Leaders: The strategies for taking charge*. New York, NY: Harper & Row.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp063oa>
- Che Ibrahim, C. K. I., Costello, S. B., & Wilkinson, S. (2018). Making sense of team integration practice through the lived experience of alliance project teams. *Construction Management and Economics*, 36(4), 501–527. <https://doi.org/10.1080/01446193.2018.1455832>
- Che Ibrahim, C. K. I., Costello, S. B., & Wilkinson, S. (2018). Key indicators influencing the management of team integration in construction projects. *International Journal of Project Management*, 36(5), 704–716. <https://doi.org/10.1016/j.ijproman.2018.04.001>
- Chen, G., Zhang, G., Xie, Y.-M., & Jin, X.-H. (2012). Overview of alliancing research and practice in the construction industry. *Architectural Engineering and Design Management*, 8(2), 103–119. <https://doi.org/10.1080/17452007.2012.659505>
- Cheng, E. W. L., Li, H., Love, P. E. D., & Irani, Z. (2004). Strategic alliances: A model for establishing long-term commitment to inter-organizational relations in construction. *Building Research & Information*, 32(4), 267–277. <https://doi.org/10.1080/0961321042000221042>
- Davis, P., & Love, P. (2011). Alliance contracting: Adding value through relationship development. *Engineering, Construction and Architectural Management*, 18(5), 444–461. <https://doi.org/10.1108/09699981111165167>

- European Construction Institute. (2000). Partnering in Europe: Incentive based alliancing for projects. London: Thomas Telford Publishing. Retrieved from <https://www.eci-online.org/wp-content/uploads/2015/11/ECI-PAC3-Partnering-in-Europe.pdf>
- Fulford, R., & Standing, C. (2014). Construction industry productivity and the potential for collaborative practice. *International Journal of Project Management*, 32(2), 315–326. <https://doi.org/10.1016/j.ijproman.2013.05.007>
- Fayol, H. (1916). General and industrial management (C. Storrs, Trans.). Institute of Electrical and Electronics Engineers. Retrieved from <https://ia803403.us.archive.org/11/items/in.ernet.dli.2015.13518/2015.13518.General-And-Industrial-Management.pdf>
- Finnish Transport Infrastructure Agency. (2018, November 5). *The project management of the Finnish Transport Agency's project Rantatunneli recognised as best in the world*. <https://vayla.fi/en/-/the-project-management-of-the-finnish-transport-agency-s-project-rantatunneli-recognised-as-best-in-the-world>
- Flick, U. (2018). *An introduction to qualitative research* (6th ed.). SAGE Publications. <https://doi.org/10.4135/9781529716648>
- Green, B. N., Johnson, C. D., & Adams, A. (2006). Writing narrative literature reviews for peer-reviewed journals: Secrets of the trade. *Journal of Chiropractic Medicine*, 5(3), 101–117. [https://doi.org/10.1016/S0899-3467\(07\)60142-6](https://doi.org/10.1016/S0899-3467(07)60142-6)
- Guo, F., Chang-Richards, Y., Wilkinson, S., & Li, T. C. (2014). Effects of project governance structures on the management of risks in major infrastructure projects: A comparative analysis. *International Journal of Project Management*, 32(6), 991–1005. <https://doi.org/10.1016/j.ijproman.2013.12.011>
- Guo, S. W., Wang, J. W., & Xiong, H. P. (2023). The influence of effort level on profit distribution strategies in IPD projects. *Journal of Management in Engineering*, 39(4), 04023038. [https://doi.org/10.1061/\(ASCE\)ME.1943-5479.0001069](https://doi.org/10.1061/(ASCE)ME.1943-5479.0001069)
- Hietajärvi, A. M., Aaltonen, K., & Haapasalo, H. (2017a). What is project alliance capability? *Construction Management and Economics*, 35(8-9), 553–569. <https://doi.org/10.1080/01446193.2017.1341632>
- Hietajärvi, A. M., Aaltonen, K., & Haapasalo, H. (2017b). Managing integration in infrastructure alliance projects: Dynamics of integration mechanisms. *International Journal of Project Management*, 35(3), 405–417. <https://doi.org/10.1016/j.ijproman.2016.12.001>
- Hietajärvi, A. M., Aaltonen, K., & Haapasalo, H. (2017c). Opportunity management in large projects: A case study of an infrastructure alliance project. *Project Management Journal*, 48(4), 72–88. <https://doi.org/10.1177/875697281704800406>

- Hoeft, M.; Pieper, M.; Eriksson, K.; Bargstädt, H.-J. (2021) Toward Life Cycle Sustainability in Infrastructure: The Role of Automation and Robotics in PPP Projects. *Sustainability*, 13, 3779. <https://doi.org/10.3390/su13073779>
- Che Ibrahim, C. K. I., Costello, S. B., & Wilkinson, S. (2013). Development of a conceptual team integration performance index for alliance projects. *Construction Management and Economics*, 31(11), 1128–1143. <https://doi.org/10.1080/01446193.2013.848832>
- Che Ibrahim, C. K. I., Costello, S. B., & Wilkinson, S. (2016). Application of a team integration performance index in road infrastructure alliance projects. *Journal of Construction Engineering and Management*, 142(7), 04016020. [https://doi.org/10.1061/\(ASCE\)CO.1943-7862.0001137](https://doi.org/10.1061/(ASCE)CO.1943-7862.0001137)
- Che Ibrahim, C. K. I., Costello, S. B., & Wilkinson, S. (2017). Validation of a team integration assessment tool in road infrastructure alliance projects. *Construction Management and Economics*, 35(3), 178–196. <https://doi.org/10.1080/01446193.2016.1244813>
- Kadefors, A., Lingegård, S., & Bröchner, J. (2024). Alliance contracts in infrastructure projects: Recent developments and future directions. *International Journal of Project Management*, 42(2), 210–225. <https://doi.org/10.1016/j.ijproman.2024.101028>
- Karlsen, J. T., Graee, K., & Massaoud, M. J. (2008). Building trust in project-stakeholder relationships. *International Journal of Project Management*, 26(2), 115–123. <https://doi.org/10.1016/j.ijproman.2007.12.001>
- Kotter, J. P. (1990). *A force for change: How leadership differs from management*. Free Press.
- Kujala, J., Aaltonen, K., Gotcheva, N., & Lahdenperä, P. (2021). Dimensions of governance in interorganizational project networks. *Project Management Journal*, 52(5), 486–502. <https://doi.org/10.1177/87569728211034943>
- Kysh, Lynn (2013). Difference between a systematic review and a literature review. figshare. Poster. <https://doi.org/10.6084/m9.figshare.766364.v1>
- Laan, A., Voordijk, H., & Dewulf, G. (2011). Building trust in construction partnering projects: An exploratory case-study. *Construction Management and Economics*, 29(6), 581–593. <https://doi.org/10.1080/01446193.2011.588955>
- Laan, A., Voordijk, H., & Dewulf, G. (2011). Reducing opportunistic behaviour through a project alliance. *International Journal of Managing Projects in Business*, 4(4), 660–679. <https://doi.org/10.1108/17538371111164065>
- Lahdenperä, P. (2006). *Developing the project alliance concept: Cases from Finland*. VTT Technical Research Centre of Finland. Retrieved from <https://cris.vtt.fi/en/publications/developing-the-project-alliance-concept-cases-from-finland>.

- Lahdenperä, P. (2011). *Project alliance: The competitive single target-cost approach*. VTT Technical Research Centre of Finland. Retrieved from <https://cris.vtt.fi/en/publications/project-alliance-the-competitive-single-target-cost-approach>
- Lahdenperä, P. (2017). Review of project alliance literature: Success factors, governance, and risk management. *International Journal of Project Management*, 35(2), 523–537. <https://doi.org/10.1016/j.ijproman.2016.12.001>
- Lappi, T., Aaltonen, K. and Kujala, J. (2019), "The birth of an ICT project alliance", *International Journal of Managing Projects in Business*, 12 (2), 325–533. <https://doi.org/10.1108/IJMPB-02-2018-0036>
- Locatelli, G., et al. (2023). A manifesto for project management research. *Project Management Journal*, 54(1), 5–18. <https://doi.org/10.1177/87569728231100000>
- Love, P. E. D., & Matthews, J. (2022). Error mastery in alliance transport megaprojects. *IEEE Transactions on Engineering Management*, 71, 1819–1836. <https://doi.org/10.1109/TEM.2022.3151494>
- Love, P. E. D., Matthews, J., Ika, L. A., Teo, P., Fang, W. L., & Morrison, J. (2021). From Quality-I to Quality-II: Cultivating an error culture to support lean thinking and rework mitigation in infrastructure projects. *Production Planning & Control*. <https://doi.org/10.1080/09537287.2021.1964882>
- Love, P. E. D., Matthews, J., Ika, L. A., & Fang, W. L. (2022). Error culture and its impact on rework: An exploration of norms and practices in a transport mega-project. *Developments in the Built Environment*, 10, 100067. <https://doi.org/10.1016/j.dibe.2022.100067>
- Northouse, P. G. (2021). *Leadership: Theory and practice* (9th ed.). SAGE Publications.
- Moradi, S., Mokhlesian, S., & Klakegg, O. J. (2022). Behavioral aspects in collaborative delivery models: A review. *Construction Management and Economics*, 40(3), 345–362. <https://doi.org/10.1080/01446193.2022.2057632>
- Moradi, S., Kähkönen, K., Peltokorpi, A., & Blayse, A. (2022). Integrated project delivery and its financial arrangements: A systematic review. *Engineering, Construction and Architectural Management*, 29(3), 1102–1124. <https://doi.org/10.1108/ECAM-12-2020-1044>
- Oxford English Dictionary. (n.d.). *Oxford English Dictionary*. Oxford University Press. Retrieved from <https://www.oed.com>
- Project Alliancing Practitioners' Guide. (2006). *Project Alliancing Practitioners' Guide*. Department of Infrastructure and Transport, Australia. Retrieved from <http://alliancecontractingelectroniclawjournal.com/wp-content/uploads/2017/05/Victorian-Department-of-Treasury-and-Finance-2006->

[%E2%80%98Project-Alliancing-Practitioners%E2%80%99-Guide%E2%80%99.pdf](#)

- Pitsis, T., Clegg, S., Marosszky, M., & Rura-Polley, T. (2003). Future perfect thinking in project alliancing: An Australian case study. *International Journal of Project Management*, 21(4), 251–259. [https://doi.org/10.1016/S0263-7863\(02\)00098-9](https://doi.org/10.1016/S0263-7863(02)00098-9)
- Qian, Q., Zhang, L., & Cao, T. (2020). Effect of behavior tension on value creation in owner–contractor relationships: Moderating role of dependence asymmetry. *Engineering Management Journal*, 32(4), 272–283. <https://doi.org/10.1080/10429247.2020.1796173>
- Rahman, M. M., & Alhassan, A. U. (2012). A contractor’s perception on early contractor involvement. *Built Environment Project and Asset Management*, 2(2), 217–233. <https://doi.org/10.1108/20441241211280855>
- Relationship Contracting. (1999). *Optimizing project outcomes*. Department of Public Works and Services, New South Wales Government. Retrieved from <https://www.constructors.com.au/wp-content/uploads/2019/12/Relationship-Contracting-Optimising-Project-Outcomes-1999.pdf>
- Ross, J. (2006). *Project alliancing: Practitioners' guide*. Department of Infrastructure and Transport, Australia. Retrieved from <https://alliancecontractingelectroniclawjournal.com/wp-content/uploads/2017/05/Victorian-Department-of-Treasury-and-Finance-2006-%E2%80%98Project-Alliancing-Practitioners%E2%80%99-Guide%E2%80%99.pdf>
- Ross, J. (2000). *Introduction to project alliancing*. Institution of Engineers, Australia. Retrieved from <https://alliancecontractingelectroniclawjournal.com/wp-content/uploads/2017/05/Ross-J.13-2000-%E2%80%98Introduction-to-Project-Alliancing%E2%80%99.pdf>
- Rowlinson, S., Cheung, F., Simons, R., & Rafferty, A. (2006). Alliancing in Australia: No-litigation contracts: A utopian dream? *Journal of Professional Issues in Engineering Education and Practice*, 132(1), 77–81. [https://doi.org/10.1061/\(ASCE\)1052-3928\(2006\)132:1\(77\)](https://doi.org/10.1061/(ASCE)1052-3928(2006)132:1(77))
- Salminen, T. (2011). The role of narrative literature reviews in research synthesis. *Journal of Research Methodology*, 8(1), 45–58. <https://doi.org/10.1080/08989621.2011.555032>
- Simonet, D. V., & Tett, R. P. (2012). Five perspectives on the leadership-management relationship: A competency-based evaluation and integration. *Journal of Leadership & Organizational Studies*, 20(2), 199–213. <https://doi.org/10.1177/1548051812467205>

- Walker, D. H. T., & Keniger, M. (2002). Quality management in construction: An innovative advance using project alliancing in Australia. *The TQM Magazine*, 14(5), 307–317. <https://doi.org/10.1108/09544780210439743>
- Walker, D. H. T., & Lloyd-Walker, B. M. (2019). The future of the management of projects in the 2030s. *International Journal of Project Management*, 37(6), 797–805. <https://doi.org/10.1016/j.ijproman.2019.01.011>
- Wang, D., Fang, S., & Li, K. (2019). Dynamic changes of governance mechanisms in mega construction projects in China: The mediating role of opportunism. *Engineering, Construction and Architectural Management*. <https://doi.org/10.1108/ECAM-03-2018-0137>
- Walker, D. H. T., Vaz-Serra, P., & McCann, R. (2022). Improved reliability in planning large-scale infrastructure project delivery through alliancing. *International Journal of Managing Projects in Business*. <https://doi.org/10.1108/IJMPB-02-2022-0035>
- Wong, G., Greenhalgh, T., Westhorp, G., Buckingham, J., & Pawson, R. (2013). Realist synthesis: RAMESES publication standards. *BMC Medicine*, 11(1), 21. <https://doi.org/10.1186/1741-7015-11-21>
- Yeung, J. F. Y., Chan, A. P. C., & Chan, D. W. M. (2007). The definition of alliancing in construction as a Wittgenstein family-resemblance concept. *International Journal of Project Management*, 25(3), 219–231. <https://doi.org/10.1016/j.ijproman.2006.10.003>
- Zaleznik, A. (1977). Managers and leaders: Are they different? *Harvard Business Review*, 55, 67–78.
- Zhu, F., Jiang, M., & Yu, M. (2020). The role of the lead firm in exploratory projects: How capabilities enable exploratory innovation of project alliances. *International Journal of Managing Projects in Business*, 13(2), 312–339. <https://doi.org/10.1108/IJMPB-05-2018-0101>
- Zou, P. X. W., Wang, S., & Fang, D. (2008). A life-cycle risk management framework for PPP infrastructure projects. *Journal of Financial Management of Property and Construction*, 13(2), 123–142. <https://doi.org/10.1108/13664380810898131>