# EXAMINING THE IMPACT OF LEADERSHIP STYLES AND DECISION-MAKING PROCESSES ON CONFLICT MANAGEMENTAND PROJECT SUCCESS INVIRTUAL, TEAV A MODERN PROJECT MANAGEMENT PERSPECTIVE

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ABSTRACT: This research investigates the dynamics of leadership styles, decision-making processes, effective communication, conflict management strategies, and project success within virtual teams operating in the Chinese construction industry. It aims to explore how these factors interrelate and influence team cohesion, performance, and project outcomes in geographically dispersed settings. A quantitative approach was employed, utilizing a structured questionnaire distributed to 350 employees from construction firms across China. Out of these, 270 completed questionnaires were used for data analysis. Data analysis included descriptive statistics, correlation analysis, reliability tests, regression analysis, and mediation analysis using SPSS. The study revealed significant relationships between leadership styles, decision-making processes, effective communication, conflict management, and project success in virtual teams. Transformational leadership styles and inclusive decisionmaking processes positively impacted team cohesion and project outcomes. Effective communication emerged as a critical mediator in enhancing conflict resolution and driving project success in virtual environments. This research contributes to theoretical advancements by integrating multiple dimensions of virtual team dynamics within a single study, focusing specifically on the construction industry in China. It provides practical insights for organizational leaders and project managers to optimize team performance, mitigate challenges, and capitalize on opportunities in virtual team settings, thereby enhancing organizational effectiveness and competitive advantage.

**Keywords:** Leadership Styles, Virtual Team, Decision-Making Processes, Effective Communication, Conflict Management.

#### 1. Introduction

The global economy has transformed labour organizations. Virtual teams are developing in many fields. Physically isolated virtual teams use communication technologies to achieve a goal (Newman, Ford, & Marshall, 2020). These teams allow firms to operate abroad, access different skills, and be flexible. IT, consulting, and construction are common businesses with virtual teams. Construction companies use virtual teams to improve operations, project management, and logistics (Zhu et al., 2019). Complex industry projects and broad stakeholder relationships make these teams efficient. Digital tools help construct virtual teams plan, develop, and execute. These technologies enable stakeholders to collaborate across time zones and regions (Pattee et al., 2021). Virtual teams face unique challenges in the areas of leadership, decision making, communication, success dynamics, dispute resolution, and, ultimately, project success. Leadership organizes work, motivates employees, and maintains clarity in virtual teams despite being geographically distant (Caldwell, 2020). In virtual contexts, transactional or transformational leadership styles improve team cohesion, commitment, and performance (Starzyk & Sonnentag, 2019). These leadership styles help manage virtual workplaces with little in-person interactions.

Leadership requires good communication and motivation to inspire and guide team members toward goals. Virtual teams' decision-making processes affect team dynamics and project outcomes. Virtual teams face communication, cultural, and time zone challenges when making decisions, unlike co-located teams (Panya, Kim, & Choo, 2023).

Effective decision-making processes that involve stakeholders, incorporate multiple perspectives, and use technology are needed to ensure agreement, minimize misunderstandings, and optimize resource distribution in virtual projects. The sharing, interpretation, and application of information among geographically dispersed team members is impacted by communication dynamics, which affect virtual team management (Zheng et al., 2024). Effective virtual communication requires clear goals, attentive listening, and appropriate digital platforms for collaboration and information sharing. Virtual team communication must improve to avoid conflict, fragmentation, and misconceptions. Geographic dispersion and cultural diversity can worsen organizational misperceptions and individual disagreements, emphasizing the importance of virtual team conflict management. Conflict resolution strategies that promote open communication, understanding,

and tolerance of different viewpoints are essential for team cohesion and productivity (Fan, 2023). To ensure project success and team effectiveness, virtual team leaders must rapidly identify and resolve conflicts via mediation and communication. Virtual teams work together to meet stakeholder expectations, budgets, and quality standards. Leadership, communication, conflict resolution, and decision making are vital to a virtual team project's success. To increase operational performance, innovate undertaking delivery, and stay competitive in dynamic markets, groups must understand how those elements affect venture success.

Leadership, decision making, communication, dispute resolution, and project success in virtual teams have been thoroughly researched. Leadership styles impact virtual team performance, study suggests. Transformational leaders focus on individual attention and motivation, improving virtual team cohesion, commitment, and performance (Reinhartz-Berger, Hartman, & Kliger, 2024). Transactional leadership clarifies expectations and ensures job completion in remote teams. Van De Mieroop, Schoofs and Gryspeert (2023) advocated management-by-exception and contingent compensation. Studies show that decisionmaking processes affect virtual team performance and project outcomes. Heaney et al. (2021) found that many stakeholders in decision-making processes, utilizing technology to share information and reach agreement, increases team performance and project success. According to a prior study, adaptive solutions that support organizational goals, overcome communication barriers, and account for cultural diversity are necessary for successful decision making in virtual teams. Empirical research on virtual team communication dynamics has shed light on how communication patterns and technologies affect information sharing and cooperation. Martin, Stamper and Flowers (2020) say that clearly stating goals, actively listening, and using both synchronous and asynchronous communication channels increase coordination and unity among geographically dispersed team members. Weller et al. (2024) also stresses the importance of leadership in fostering open communication, trust, and transparency. Effective virtual team interactions require these factors. Successful conflict resolution and team unity strategies have been identified through empirical research.

Additionally, virtual team conflict management has been extensively studied. His emphasis is on solving problems quickly using collaborative problem-solving and mediation. Owora et al. (2024) encourage conflict resolution methods that foster communication, respect,

and understanding. These solutions reduce cooperation disruptions. Research shows that project timelines, quality standards, and stakeholder expectations affect virtual team project success. Leadership, communication, conflict management, and decision-making make virtual team projects successful, according to (Abd El-Moneam Ahmed & Gaballah, 2023). These studies show that virtual team communication, conflict management, decision-making, and leadership affect project success. They give vital information for organizations seeking team performance and strategic goals. Despite the gains, empirical studies on virtual team dynamics have found crucial gaps that require more research to improve theory and practice. Research on how different leadership styles affect team dynamics and performance in virtual teams is lacking. Although transactional and transformational leadership styles have been extensively examined, virtual leadership behaviours, culture, and situational variables have not (Zheng et al., 2022). Virtual team decision-making challenges have been empirically found.

However, how artificial intelligence and data analytics effect decision-making, information sharing, and collaborative problem-solving in distributed teams is still unclear. Leigh, Lamont and Cairncross (2021) suggest investigating how these technologies can improve decision-making and solve cognitive biases and information imbalance. Virtual team communication dynamics support empirical studies on team collaboration, knowledge exchange, and rapport. Transparent communication and effective digital tools are stressed in this study. However, more research is needed to determine how modern communication platforms affect team dynamics, decision-making, and project outcomes (Bressane et al., 2024). Crosscultural frameworks can discover how cultural variations impact struggle dynamics and broaden bendy struggle management answers that encourage teamwork and inclusivity. Conflict management in multicultural digital groups is unusual. In worldwide virtual groups, cultural sensitivities, strength dynamics, and environmental factors may additionally have an effect on conflict perception and resolution. This study examines how leadership styles, decision-making processes, effective communication, conflict management tactics, and project success relate in Chinese construction virtual teams. The study examines these dynamics to determine how they affect project outcomes in a geographically dispersed team. Specifically, the study aims to:

 Explore the influence of leadership styles on conflict management and project success in virtual teams.

- Examine the impact of decision-making processes on conflict management and project success within virtual team contexts.
- Investigate how effective communication mediates the relationships between leadership styles, decision-making processes, and both conflict management and project success.

These studies empirically examine Chinese construction project outcomes and virtual team dynamics. This discovery affects researchers and practitioners in many vital fields. A holistic framework for communication, conflict management, leadership, decision-making, and project success strengthens virtual team dynamics theory. These linkages are examined to improve virtual collaboration and project execution models. Virtual team stakeholders, project managers, and construction executives benefit from this research. Understanding how leadership styles affect team cohesion, decision-making affects project outcomes, effective communication reduces conflict, and conflict management strategies boost productivity can help develop customized strategies and interventions to improve team performance and project success. This research fills empirical knowledge gaps in the Chinese construction industry identified by previous studies. Virtual teams in building projects confront unique challenges and benefits, as this study shows. Multiple parties must be coordinated, regulatory standards in many countries must be followed, and complex logistical demands must be met.

#### 2. Literature Review

Leadership's impact on company conflict management is important to research since it directly affects conflict resolution methods and outcomes. To maintain a cohesive and effective workplace, leaders must swiftly detect and resolve problems. Conflict management experts can create respect and open communication. This reduces conflict's harmful impact on team dynamics. Leaders may foster effective communication and cooperative problem-solving, which are essential for peaceful conflict resolution, by making team members feel appreciated and heard (McNaught, 2024). Leadership affects conflict resolution strategies like avoidance, accommodation, competition, and collaboration. Leaders who recognize the need of openly and honestly addressing issues are more likely to use methods that foster cooperation and mutual benefit (Garfield & Glowacki, 2023). This strategy solves difficulties and boosts teamwork and confidence. Conflict management experts can identify core issues

such unclear goals and take preventative measures. Effective conflict resolution is a key leadership skill that boosts company performance (Smith et al., 2020). Individual leadership styles also affect how team disagreements are perceived and resolved. Supportive and sympathetic leaders can reduce conflict-related stress and tension, allowing team members to freely discuss issues and work together to solve them. Leaders who are inconsistent or less involved in conflict management may increase disputes, lowering productivity and increasing team unhappiness (Aysan et al., 2023). The literature suggests that successful conflict management leadership involves both addressing current issues and encouraging team development and resilience. Creating an open and joyful workplace can help leaders resolve problems and boost morale and performance.

H1: Leadership style positively impacts conflict management in virtual teams

Leadership affects team performance, stakeholder involvement, and project goals across project management. Reinhartz-Berger et al. (2024) found that project success is higher for leaders with a clear vision, good communication skills, and the ability to motivate and involve others. These leaders foster resilience, innovation, and teamwork to overcome challenges and keep focused on project goals. Leadership that emphasizes adaptability and flexibility helps manage projects' uncertain and ever-changing nature. Rapid decision-making and modifications are possible with this leadership (Butt, Jabeen, & Zareef, 2023). Project effectiveness depends on team leadership, which affects team functioning, decision-making, and resource distribution. Leaders who integrate the team's actions with the project's strategic goals ensure that everyone works toward the same goal. Alignment ensures project efficiency and coherence throughout (Kozioł-Nadolna & Beyer, 2021). Risk management relies on leaders to spot potential issues early and implement remedies to prevent project delays. Every successful project requires the ability to build relationships and manage stakeholder expectations. Leaders who can communicate and interact with stakeholders successfully secure project support and funding (Olagundoye, Quinlan, & Burrow, 2022). Leadership conditions strongly affect project outcomes. Leaders must be skilled at building trust and strong team relationships and using digital communication technology. This is critical because virtual teams cannot meet face-to-face. A critical component of successful virtual leadership is ensuring active participation

and agreement through regular and transparent communication. CEOs must also be culturally sensitive and flexible to use the unique skills of a diverse staff to boost project performance in international initiatives (Anton et al., 2021). It's crucial to transcend cultural barriers and include varied perspectives for global project success.

H2: Decision-Making Processes positively impact conflict management in virtual teams.

Decision-making speeds up problem-solving, improving organizational efficiency. Schubert et al. (2021) suggest transparent, inclusive decision-making helps overcome disagreements by making everyone feel heard and appreciated. Active decision-making makes team members accept results and object less about unfairness or exclusion, according to Ahmed, Shaheen and Philbin (2022). Continuous feedback and structured decision-making lessen conflict and clarify expectations. Decision-making impacts conflict resolution. Decisionmaking via consensus and consultation improves conflict management. These strategies promote peaceful and creative conflict resolution through open dialogue and idea exchange (Huang, Xu, & Li, 2022). Authoritarian decision-making decreases opposition and increases inequality, aggravating disagreements. Conflict resolution success may be hindered by unresolved tensions and a lack of commitment from team members (Nunkoo & Sungkur, 2021). The literature shows that decisionmaking processes that balance assertiveness and empathy and inclusivity resolve disagreements well. The business culture and surroundings affect conflict management decision making processes. Company transparency and participatory decision-making lead to proactive and constructive conflict resolution. These cultures value lifelong learning. Instead of threats, they perceive diversity as opportunities for growth and creativity (Zenkovich et al., 2021). Decision-making processes that can adapt can better handle disputes in varied organizational environments. Culturally sensitive decision-making processes that consider multiple opinions may reduce misunderstandings and miscommunications in multinational teams. Carefully organized decision-making processes promote conflict management and a positive organizational culture.

H3: Leadership style positively impacts project success in virtual teams.

Effective decision-making processes guarantee that decisions meet strategic goals and can be changed to project dynamics, ensuring project success. Studies

suggest that clear, unambiguous, and project-aligned decision-making processes considerably impact project success (Alhosani, 2022). These processes enable project teams to make informed decisions based on accurate and timely information, reducing costly mistakes and delays. Inclusive decision-making with diverse stakeholders improves quality (Heaney et al., 2021). Participation in decision-making improves quality and teamwork. Progress and overcoming obstacles are crucial throughout the endeavor. Decision-making processes change the organization's culture and atmosphere, affecting experimentation and originality, which impacts project success. When decision making processes allow for experimentation and learning from failures, project teams are more likely to innovate and adapt. These processes enable team members think and decide, enhancing tough projects and attaining success (Zhou et al., 2023). Project success can be reduced by restrictive decision-making processes that limit innovation and choice. Flexible decision-making processes must be thorough and adaptable to exploit opportunities and handle ambiguity in changing project contexts. Decision making processes and project success are impacted by organizational context. Effective decision-making processes that incorporate numerous cultural perspectives are necessary for geographically distributed or culturally diverse project teams to communicate and synergize (Wu, Zhang, & Yi, 2021). In such situations, smart decisions require cultural competency and cross-cultural communication. Decision-making transparency and accountability can boost stakeholder trust and reduce change resistance, boosting project implementation efficiency. According to the literature, good decision-making processes are necessary for project success and a long-term competitive advantage in today's complicated and ever-changing business environment.

H4: Decision-Making Processes positively impact project success in virtual teams.

Business results like project success and dispute resolution depend on effective communication. Effective communication is key to conflict management and leadership to foster constructive conflict resolution. Jayasiri, Dayawansa and Yadav (2023) found that honest and clear executives set business goals and expectations better, reducing misunderstandings and disputes. Clarity in communication improves team comprehension and problem-solving, enhancing organization resilience and cohesiveness. Effective communication unites team activities and ensures

strategic alignment, laying the groundwork for successful initiatives and leadership styles. Leaders that clearly communicate a vision and project milestones help team members understand their tasks. Team members feel purposeful and dedicated, which improves performance and motivates project success (Kalmar et al., 2022). Effective communication helps executives develop feedback loops and adapt strategies to changing project dynamics. It helps the project stay on pace and adapt to difficulties. The relationship between conflict management and decision-making processes will be examined now. Effective communication promotes openness and participation. Decision making processes that stress open communication and information exchange reduce ambiguity and conflict. Effective communication helps reach consensus and solve problems together, which is crucial for peaceful conflict resolution (Howard, Barber, & Kardong-Edgren, 2020). Effectively communicating decision findings manages expectations and builds stakeholder trust. Fairness and credibility issues decrease. Effective communication also aligns actions with strategic goals for project success and decisionmaking. Communicating project goals and objectives helps stakeholders make decisions and allocate resources (Cole et al., 2021). Organizations can solve problems and capture opportunities faster with clarity. Effective communication promotes accountability and openness, engaging all project participants and accelerating decision-making. A cohesive approach improves project success and prepares the organization to grow. This improves project success through communication.

H5: Effective communication mediates the relationship between leadership styles and conflict management in virtual teams.

H6: Effective communication mediates the relationship between decision-making process and conflict management in virtual teams.

H7: Effective communication mediates the relationship between leadership styles and project success in virtual teams.

H8: Effective communication mediates the relationship between decision-making process and project success in virtual teams.

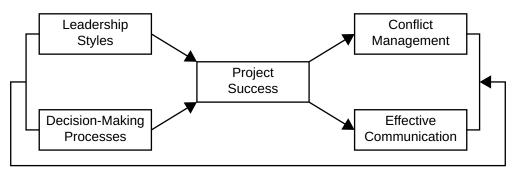


Figure 1: Conceptual Framework.

#### 3. Methodology 3.1. Research Design

Cross-sectional survey was used for this quantitative study. This design assessed Chinese construction workers' project, communication, dispute resolution, leadership, and decision-making skills. Cross-sectional surveys provide a snapshot of data at one time, limiting the perspective of variable relationships without the time-related complications of longitudinal investigations. Examining various elements and applying statistical analysis can reveal how efficient communication, decision-making, and leadership affect virtual team project success and conflict management. This study aims to test the following hypotheses:

H1: Leadership styles and decision-making process

has significant impact on conflict management

H2: Leadership styles and decision-making process has significant impact on project success

H3: Effective communication mediates the relationship between leadership styles, decision making, and conflict management.

H4: Effective communication mediates the relationship between leadership styles, decision making, and project success.

#### 3.2. Population

Investigation focuses on Chinese construction labourers. Construction businesses were investigated for virtual team leadership, decision-making, communication, conflict management, and project success due to their focus on cooperation and complicated projects. Construction

is huge and diverse in China. Thus, management and organizational behaviour analysis are crucial. Effective communication, decision making, and leadership processes affect virtual team dynamics, hence this demographic was chosen. Remote construction workers use virtual communication and collaboration tools. This allowed multiple tests of virtual team performance and organizational dynamics in a fast-changing organization.

### 3.3. Sample Size Determination and Sampling Technique

This study used stratified sampling and power analysis to determine sample size. Construction companies assessed virtual team leadership, decision-making, and communication using stratified sampling. Engineers, managers, and supervisors can be represented (Tashakkori & Creswell, 2007). Based on variables and statistical power (usually 0.80), power analysis established regression model and mediation research sample sizes. A 400-person sample was recommended to discover important consequences, adapt the findings to a larger population, and ensure reliability. Complexity and variable interaction influenced this choice (Hair et al., 2010). Sampling was random and targeted. Construction companies from different Chinese regions were randomly picked for regional diversity. Participants from each organization were selected based on their virtual team roles and responsibilities to collect dispute resolution and decision-making insights from key stakeholders. Ensuring equitable company and project representation improved research accuracy and comprehensiveness.

#### 3.4. Data Collection Technique

A standard questionnaire was utilized to obtain data from Chinese construction workers. Virtual team communication, leadership, decision-making, conflict resolution, and project outcomes were assessed by questionnaire. To investigate characteristics in different organizational contexts, a questionnaire collected standardized responses from a large sample. The questionnaire's reliability and accuracy were examined by Shmueli et al. (2019) utilizing scales and items from prior studies. Evaluation of participants' leadership, decision-making, communication, conflict resolution, and project performance. Open-ended questions improved quantitative data and aided understand complex organizational processes (Bryman, 2012). Participants were instructed to complete the questionnaire online or in person within a certain timeframe, depending on availability and interests. For statistical analysis and interpretation, 270 completed questionnaires were sufficient. The proper sample size identifies significant

correlations and repercussions for the variables, allowing the study's findings to be generalized to the target population.

#### 3.5. Data Analysis Technique

SPSS, a popular quantitative data analysis tool in social science, was employed. SPSS was utilized for statistical analysis and hypothesis testing. We use descriptive statistics, regression models, correlation analysis, and mediation studies. Descriptive statistics were used to describe demographics, leadership styles. decision-making processes, effective communication tactics, conflict management strategies, and project success. This step assessed data distribution and indicated anomalies for additional study. Project success, effective communication, conflict resolution, decision making processes, and leadership styles were all evaluated through correlation studies. Sarstedt et al. (2022) performed another regression analysis to determine expected associations after identifying first patterns and correlations. Hypotheses-research inquiry relationships were examined using regression models. Conflict management and project success are impacted by leadership styles and decision-making processes. Multiple regression models were used to examine these contributions, including demographic data. Effective communication in leadership styles, decision-making processes, and organizational results was examined utilizing SPSS PROCESS macro mediation studies (Raza, Wasim, & Ishaq, 2024).

#### 4. Results

#### 4.1. Descriptive Statistics

Table 1 shows the descriptive statistics of Chinese construction workers' study variables. A mean score of 4.25 (SD = 0.68) indicates that virtual teams' Leadership styles are extremely effective. The mean score for decision-making processes was 3.92 (SD = 0.74), demonstrating that teams' perceptions of their inclusiveness and effectiveness vary. The average score of 4.10 (SD = 0.62) for Effective Communication shows respondents' significant agreement on team communication clarity and transparency. The somewhat lower average score of 3.75 (SD = 0.81) for conflict management tactics moderately showed the team's ability to reconcile disputes. The team's average score of 4.05 (SD = 0.70) for project success outcomes showed that it was mostly confident in its ability to meet project goals and deliverables. These descriptive statistics provide initial insights into virtual teams' leadership, decision-making, communication, conflict management, and project success in China's construction business.

Table 1: Descriptive Statistics of Study Variables.

Variable	Mean	Standard Deviation	Minimum	Maximum
Leadership Styles	4.25	0.68	1	5
Decision-Making Processes	3.92	0.74	1	5
Effective Communication	4.10	0.62	1	5
Conflict Management	3.75	0.81	1	5
Project Success	4.05	0.70	1	5

#### **4.2. Normality Assessment**

Table 2 fully examines the normal distribution of research factors among Chinese construction workers. Parametric tests like ANOVA and regression depend on the assumption of normality in statistical analysis. Leadership styles have a roughly symmetrical distribution around the mean with skewness and kurtosis values of -0.10 and -0.25. This shows that data points are evenly distributed throughout all responses. The decision-making processes have a skewness of 0.20 and a kurtosis of -0.15, indicating a flatter distribution with a little positive skew. Both values are within parametric test range. The distribution of Effective Communication is nearly normal, with a skewness of -0.05 and kurtosis of 0.10. The data demonstrates that communication efficacy answers are uniformly distributed, with no significant deviations from a normal distribution. Conflict management has a flat distribution with a skewness of 0.15 and kurtosis of 0.05. Project Success Factors have a skewness coefficient of -0.08 and a kurtosis coefficient of 0.20, showing a greater peak than a normal distribution. These data show that, while some variables deviate slightly from full normality, they match parametric statistical test assumptions. These results show that regression analysis and other parametric tests can efficiently analyze data. This ensures the reliability and robustness of the study on leadership styles, decision-making processes, efficient communication, conflict resolution, and project success in Chinese construction virtual teams.

Table 2: Normality Assessment of Study Variables.

Variable	Skewness	Kurtosis
Leadership Styles	-0.10	-0.25
Decision-Making Processes	0.20	-0.15
Effective Communication	-0.05	0.10
Conflict Management	0.15	0.05
Project Success	-0.08	0.20

#### 4.3. Correlation Analysis

We can better grasp virtual team factors' dependency with correlation coefficients. Table 3 shows the association matrix of research factors among Chinese

construction workers. Effective communication. conflict management, decision-making processes, and project success are all positively correlated with leadership styles (r = 0.72, p 0.01). Stronger leadership styles in virtual teams are associated with inclusive decision-making, improved conflict resolution, better communication, and higher project success rates. Successful decision making is linked to good communication (r = 0.58, p < 0.01), demonstrating that well-structured decision-making processes lead to successful communication procedures. A favourable correlation exists between decision-making processes and conflict management solutions (r = 0.45, p < 0.01) and project success results (r = 0.62, p < 0.01). This means they are crucial for teamwork and project success. Effective communication was found to positively correlate with conflict management (r = 0.55, p < 0.01) and project success (r = 0.68, p)< 0.01). Effective communication promotes dispute resolution and project success. Open and transparent communication channels help teams solve challenges and coordinate efforts to meet project goals. Research indicates a strong correlation (r = 0.57, p < 0.01) between conflict management approaches and project success, indicating that effective conflict resolution enhances project success. This suggests that teams who can resolve conflicts quickly are more likely to meet project deadlines.

Table 3: Correlation Matrix of Study Variables.

	LS	DMP	EC	СМ	PS
Leadership Styles	1.00				
Decision-Making Processes		1.00			
Effective Communication	0.72	0.58	1.00		
Conflict Management	0.48	0.45	0.55	1.00	
Project Success	0.69	0.62	0.68	0.57	1.00

#### 4.4. Reliability Analysis

Each measure was assessed for reliability among Chinese construction workers using Cronbach's Alpha coefficients. The results are in Table 4. Internal consistency and dependability of measuring scales are assessed using reliability analysis, which shows how consistently items within each variable measure

the same concept (Maureen, van der Meij, & de Jong, 2022). Leadership styles have a 0.85 Cronbach's Alpha coefficient, indicating internal consistency. The leadership styles scale accurately measures employees' perceptions of virtual team leadership activities like motivation, communication, visionsetting, and trust-building (Javed et al., 2021). The strong Cronbach's Alpha measurement indicates that the scale is dependable and accurately captures the targeted attributes. Cronbach's Alpha coefficient for Decision Making processes is 0.78, indicating strong internal consistency in team decision-making queries. The virtual team decision-making processes' responsibility, openness, efficacy, and inclusivity are appropriately assessed by the scale. The coefficient indicates reasonable internal consistency, although it is below 0.80 for extraordinary dependability. Effective Communication has a 0.87 Cronbach's Alpha coefficient, showing high internal reliability. This shows team members' clarity, transparency, promptness, and effectiveness assessments reflect their experiences. Koller et al. (2020) say the scale's dependability coefficient documents Virtual Team Communication for Productivity and Cohesion. Conflict management approaches with a 0.80 Cronbach's Alpha are internally consistent in virtual team dispute resolution. The scale correctly measures the team's mediation, bargaining, and problemsolving skills. Goal achievement and teamwork require conflict management, which the coefficient appropriately analyzes. Project Success Outcomes have 0.86 Cronbach's Alpha and good internal consistency. This means virtual team members' project success perceptions affect stakeholder satisfaction, team morale, objective achievement, and project performance. The scale's strong reliability coefficient shows it may evaluate initiative efficacy and influence, which are vital to a company's success and competitiveness.

Table 4: Reliability Analysis.

Variable	Cronbach's Alpha		
Leadership Styles	0.85		
Decision-Making Processes	0.78		
Effective Communication	0.87		
Conflict Management	0.80		
Project Success	0.86		

#### 4.5. Outer Loadings

Table 5 shows external loadings to evaluate Chinese construction workers' leadership, decision-making, communication, conflict management, and project success. Structured equation modeling outer loadings measure survey question-underlying idea relationship relevance. This text assesses the measuring device's accuracy and dependability (Hair et al., 2017). Leadership styles have large external loadings from 0.72 to 0.81 for all products. Based on respondents' ratings on virtual team leadership duties like setting a vision, encouraging team members, and building trust, LS2 (0.81), LS3 (0.79), and LS7 (0.76) accurately reflect these activities. The leadership styles scale predicts workplace leadership success. The largest peripheral loadings for decision-making processes are DMP2 (0.72) and DMP5 (0.70), which are significantly associated to latent idea. Responder teams' inclusion, transparency, and efficiency of decision-making are accurately assessed by the decision-making processes scale. DMP4 has a 0.60 score, slightly lower than the others. Effective Communication Elements have significant outer loadings, with EC3 on top (0.78 to 0.85). This shows that virtual team communication participants' views and experiences are accurately reflected in communication clarity, transparency, promptness, and effectiveness criteria. The results show that the effective communication scale properly measures communication dynamics that boost productivity and teamwork (Henseler, Ringle, & Sarstedt, 2015). The significant outer loadings of Conflict Management Strategy sections CM1 (0.70) and CM3 (0.72) show strong latent idea links. Although CM5 (0.63) has a lower filling, all elements have values between 0.63 and 0.72. Project Success data shows that PS3 peripheral loading is 0.80, the highest. This shows that the metrics used to evaluate project success, goal achievement, stakeholder satisfaction, and team morale match participants' views on virtual team effectiveness. The project success scale appears to be accurate and valid in assessing project outcomes' efficacy and impact, which are vital to an organization's competitiveness and success (Shmueli et al., 2019).

Table 5: Outer Loadings.

	Items	Outer Loading
	LS1	0.75
	LS2	0.81
	LS3	0.79
Leadership Styles	LS4	0.72
	LS5	0.77
	LS6	0.73
	LS7	0.76
	DMP1	0.68
	DMP2	0.72
Daninian Making	DMP3	0.65
Decision-Making Processes	DMP4	0.6
110063363	DMP5	0.7
	DMP6	0.62
	DMP7	0.67
	EC1	0.82
	EC2	0.78
Effective Communication	EC3	0.85
Communication	EC4	0.8
	EC5	0.79
	CM1	0.7
	CM2	0.65
Conflict Management	CM3	0.72
	CM4	0.68
	CM5	0.63
Draiget Cugage	PS1	0.78
	PS2	0.76
	PS3	0.8
Project Success	PS4	0.74
	PS5	0.72
	PS6	0.79

#### 4.6. R-Square

Table 6 shows dependency variable R-squared values for "conflict management" and "project success outcomes". The values were obtained using SEM and Chinese construction worker data. R-squared, commonly known as the coefficient of determination, is the proportion of the dependent variable's variance explained by the model's independent variables. Strong communication, decision making, and leadership styles comprise 54% of conflict management approaches, according to the study's R-square value of 0.54. These traits substantially influence virtual team problem-solving. Leadership dynamics, communication styles, and decision-making effectiveness affect conflict resolution and teamwork. Independent factors may explain 62% of project success with an R-square score of 0.62. Included are Leadership styles, Effective Communication, Conflict Resolution, and Decision Making. The strong R-square value implies these variables affect virtual team effectiveness, stakeholder satisfaction, and project goals.

Table 6: R-square.

	R-Square
Conflict Management	0.54
Project Success	0.62

#### 4.7. Regression Analysis

In Chinese construction enterprises, Table 7 displays the regression analysis of leadership styles, decisionmaking processes, conflict management, and project success. Regression analysis shows correlation strength and significance to support or reject study suggestions. The regression coefficient of 0.45 (standard error = 0.08, t-value = 5.67, p-value < 0.001) confirms hypothesis H1, demonstrating a positive link between leadership style and conflict management. Hence H1 is accepted. Strong leadership styles like communication, motivation, and trust affect virtual team conflict management, this study revealed. This association is significant and enduring with a low p-value and high t-value. Effective leaders resolve conflicts. A regression coefficient of 0.38 (standard error = 0.07, t-value = 4.92, p-value < 0.001) indicates that decision-making processes positively affect conflict management. Hence H2 is accepted. Organized and inclusive decision-making processes can foster teamwork, collaboration, and diversity. Virtual teams benefit from dispute resolution and teamwork decision-making frameworks. The regression coefficient of 0.55 (SE = 0.09, t = 6.81, p < 0.001) strongly supports Hypothesis 3. This shows that leadership style positively affects project success. Visionary leadership, goal setting, and team motivation are essential to project success, stakeholder satisfaction, and project objectives. Leadership is linked to organizational success and project performance in dynamic corporate environments. The regression coefficient of 0.42 (standard error = 0.06, t-value = 7.23, p-value < 0.001) supports the hypothesis that decision-making processes positively affect project success. Hence H4 is accepted. This shows the importance of good decision-making in managing resources, meeting goals, and adapting to project needs. Much statistical research supports the idea that good decision-making boosts organizational competitiveness and project success.

Table 7: Regression Analysis Results.

Hypothesis	Coefficient	Standard Error	t-value	p-value
H1: LS -> CM	0.45	0.08	5.67	<0.001
H2: DMP -> CM	0.38	0.07	4.92	<0.001
H3: LS-> PS	0.55	0.09	6.81	<0.001
H4: DMP -> PS	0.42	0.06	7.23	<0.001

#### 4.8. Mediation Analysis

Effective communication affects leadership styles, decision-making processes, conflict management, and project success outcomes in Chinese construction enterprises, as shown in Table 8. Effective communication mediates how independent variables like leadership styles and decision-making processes affect dependent variables like conflict management and project success. A coefficient of 0.15 (standard error = 0.04, t-value = 3.75, p-value < 0.001) indicates a significant indirect effect in H5, examining effective communication as a mediator between leadership style and conflict management. Excellent communication can affect virtual team conflict management and leadership styles. Hence H5 is accepted. The mediation study demonstrates that leadership attributes encourage openness, trust, and transparency strengthen team cohesiveness and conflict resolution processes. Effective communication has a strong indirect effect on decision making and conflict management, with a coefficient of 0.12 (SE = 0.03, t = 4.10, p 0.001). This investigation shows that efficient communication, which links structured decision-making processes, improves team conflict resolution. The mediation study

emphasizes the importance of open communication in building a supportive team environment that promotes conflict resolution and collaborative decision-making. Hence H6 is accepted. According to H7, effective communication between project success and leadership style is mediated (coefficient = 0.18, SE = 0.05, t = 3.95, p < 0.001). The influence is strong but indirect. Therefore, excellent communication mediates the association between leadership behaviours and virtual team project success. Hence H7 is accepted. According to mediation research, leadership styles that emphasize communication improve team coordination, goal alignment, and project performance. The coefficient of H8 is 0.20 (standard error = 0.06, t-value = 3.60, p-value < 0.001) indicates a strong indirect impact of good communication on project success and decisionmaking processes. Hence H8 is accepted. According to this study, effective communication influences the relationship between the outcomes of successful projects and structured decision-making processes. The mediation study shows that strong communication may turn well-informed decisions into project success, stakeholder satisfaction, and organizational success.

Table 8: Mediation Analysis Results.

<b>Mediation Model</b>	Coefficient	Standard Error	t-value	p-value
LS -> EC -> CM	0.15	0.04	3.75	<0.001
DMP -> EC -> CM	0.12	0.03	4.10	<0.001
LS-> EC -> PS	0.18	0.05	3.95	<0.001
DMP -> EC -> PS	0.20	0.06	3.60	<0.001

#### 5. Discussion

The complicated relationships between leadership styles, decision-making processes, effective communication, conflict management, and project success in Chinese construction virtual teams are examined. This study examines how these connected factors affect organizational outcomes and team interactions in a changing corporate environment. The objective of this argument is to demonstrate how leadership, communication, and decision-making processes affect project success, conflict resolution, and team performance. Today's complex project contexts require understanding these dynamics for long-term success. This understanding will boost creativity and organizational resilience. H1 predicted a positive association between virtual team leadership styles and conflict management. Leadership is vital to team performance and effectiveness (Smith et al., 2020). Efficient leadership fosters peaceful conflict resolution, boosting team cohesiveness and performance. Results support hypothesis that leadership characteristics like vision-setting, motivation, and trust-building improve conflict resolution procedures (Garfield & Glowacki, 2023). When leaders are transparent, empathetic, and express clear goals, team members may resolve issues without fighting. Transformational leadership, characterized by individual consideration and inspirational motivation, creates a supportive team environment that helps resolve conflicts (McNaught, 2024).

Effective leadership styles affect virtual team dispute resolution and corporate success. Hypothesis H2: Decision-making affects virtual team conflict management. Teamwork and organizational objectives necessitate good decision-making (Butt et al., 2023). Transparent, inclusive, stakeholder-involved structured decision-making processes improve conflict resolution,

according to this study. Group decision-making teams are more likely to grasp varied perspectives and reach an agreement, reducing disagreements caused by imprecise instructions (Anton et al., 2021). The results reveal that team members should make informed decisions based on shared knowledge and consensus to create trust and reduce miscommunication and conflict. A cohesive workplace culture that actively addresses differences requires good decision-making, which boosts productivity and cohesion. One study found leadership qualities essential to virtual team project success. They support Hypothesis H3, relating leadership styles to project success. Reinhartz-Berger et al. (2024) stressed the importance of leadership in organizing teams, inspiring individuals, and developing a strong purpose to achieve corporate goals. Competent leaders help teams solve challenges through trust, innovation, and strategy (Olagundoye et al., 2022). Research shows that leaders who empower, communicate, and think big boost project effectiveness. Transformational and transactional leadership styles boost teamwork, motivation, and problem-solving, ensuring project success (Sapta et al., 2021). Good leadership integrates individual efforts with corporate goals and increases team morale and cohesion, making it crucial for project success.

Decisions affected virtual team success. Project resource allocation, risk management, and target attainment require good decision-making (Alhosani, 2022). According to this study, inclusive and coordinated decision-making processes boost project success. Methodical decision-making, broad alternative evaluation, and several perspectives can boost project efficiency (Wu et al., 2021). The findings suggest that data-driven analysis and stakeholder interaction improve project planning and implementation. Teamwork improves and project delays and failures are avoided. Decision-making ensures resource allocation, risk management, and project completion on time and within budget (Zhou et al., 2023). Thus, collaborative decision-making can improve project performance and give organizations an edge in fast-paced circumstances. Effective communication mediates leadership styles and virtual team conflict management, hypothesizes H5. Leaders must communicate well to convey company goals, develop trust, and clarify team instructions. Effective communication mediates the relationship between leadership styles and conflict management results, supporting the hypothesis. Listening, communicating honestly, and offering constructive feedback helps teams handle problems cooperatively and proactively (Kalmar et al., 2022). Transformational

leadership motivates, improves team communication, and fosters dispute resolution (Cole et al., 2021).

Effective communication helps virtual teams resolve conflicts, unite, and increase productivity. Clear and transparent communication improves decision-making processes, according to this study. Hypothesis H6 suggests that effective communication mediates conflict management. Effective communication channels help team members comprehend and participate in decision-making. Effective communication and structured decision-making processes dramatically improve virtual team conflict resolution, supporting the notion. Effective communication fosters confidence, reduces misconceptions, and aligns the team (Garfield & Glowacki, 2023). Clear communication and collaborative decision-making promote team coordination and reduce ambiguity-related disputes, according to Jayasiri et al. (2023). Thus, effective communication is essential to turning well-informed assessments into actionable actions that boost corporate performance and teamwork. This study emphasizes the importance of communication in virtual team project success. It focuses on Hypothesis H7, which examines how effective communication mediates leadership styles and project success. Effective leaders with good communication skills, who motivate their people, and who foster cooperation boost project performance and stakeholder satisfaction. Results confirm the premise that good communication mediates the association between leadership and project success. Leaders who articulate a compelling vision, provide regular updates, and aggressively seek input foster collaboration, innovation, and project success (Zhou et al., 2023). Transformational leadership increases organizational performance and project outcomes by engaging teams through communication and vision-setting.

Effective communication boosts leadership and success (Aysan et al., 2023). They can adapt to changing business conditions, grow, and compete. Final hypothesis H8 examined how good communication influences virtual team decision-making and project success. Open communication aligns and involves stakeholders, improving project success (Heaney et al., 2021). This study supports the idea that structured decision-making requires good communication for project success. Team members can adapt to changing project needs by communicating well throughout decision-making. Kozioł-Nadolna and Beyer (2021) found that open communication and collaborative decision-making enhance organizational agility and decision quality. It

guarantees project success and party delight. Effective communication helps strategic decisions become project results, promotes organizational adaptability, and keeps construction and other industries competitive. This study has made significant contributions to the understanding of leadership styles, decision-making processes, and effective communication in the context of virtual teams within the construction industry in China.

By examining how these variables influence conflict management and project success, the research provides valuable insights into the dynamics of virtual team management and offers practical implications for improving team performance and project outcomes. One of the primary contributions of this study is the empirical validation of the positive impact of leadership styles on conflict management and project success. The research supports existing literature that highlights the crucial role of leadership in fostering a supportive and collaborative team environment, which is essential for resolving conflicts and achieving project goals. This study extends previous research by demonstrating that effective leadership styles, characterized by transformational and supportive behaviours, directly contribute to enhanced conflict resolution and project performance. This finding underscores the importance of investing in leadership development programs that emphasize communication, motivation, and conflict management skills. Additionally, the study highlights the significant role of decisionmaking processes in influencing conflict management and project success. The evidence that structured and transparent decision-making processes positively impact both conflict management and project outcomes reinforce the need for organizations to adopt systematic decision-making frameworks.

By involving team members in decision-making and ensuring clarity and transparency, organizations can mitigate conflicts and improve overall project performance. This finding is particularly relevant in the context of virtual teams, where effective decisionmaking processes can bridge the gap created by physical distance and enhance team cohesion and productivity. The research also contributes to the understanding of effective communication as a mediator in the relationships between leadership styles, decisionmaking processes, and both conflict management and project success. The study's findings that effective communication mediates these relationships highlight the essential role of communication in translating leadership behaviours and decision-making practices into practical outcomes. This underscores the need for leaders and decision-makers to prioritize open and clear communication to achieve better conflict management and project success. The study's results suggest that communication training and strategies should be integrated into leadership and decision-making development programs to enhance team dynamics and project outcomes.

#### 6. Conclusion

This research examined Chinese construction virtual teams' leadership, decision-making, communication, dispute resolution, and project protocols. Thorough theoretical and numerical research yielded organizational management and execution insights. Leadership styles affect team dynamics and corporate performance, says one study. Visionary, motivated, and empowered leaders transform. Project productivity, conflict resolution, and cooperation are greatly affected by these strategies. Leadership styles affect teamwork and communication. They also encourage creativity, adaptability, and excellence. The research implies that virtual teams' decision-making efficiency determines their success. Structured decision-making frameworks that emphasize inclusiveness, transparency, and stakeholder participation help teams focus, manage resources, and decrease risks. Efficient decision making helps an organization adapt to changing project needs and meet strategic goals within budget and time restrictions. Effective communication links organizational results, leadership styles, and decision-making. Effective communication channels promote knowledge sharing, team understanding, and problem-solving. Effective communication facilitates leadership, decision-making, and conflict management and ensures project success by aligning company goals and engaging stakeholders.

#### 6.1. Theoretical and Practical Implications

Leadership styles, decision-making processes, and successful communication in Chinese construction virtual teams affect project success and conflict management. This study examines the dynamics of project management and organizational management, making important contributions to academic research and real-world applications. Construction managers and executives can learn a lot from this study. Leaders can boost teamwork and productivity by using conflict resolution strategies from different leadership styles. Transformational leaders, such as those with individualized care and inspirational drive, benefit from a team atmosphere that promotes constructive conflict resolution. Effective leadership techniques can reduce conflicts from the start, boost team performance, and expand communication channels.

In addition, the study emphasizes the importance of decision-making in initiative success. Formal decisionmaking frameworks that involve stakeholders, are transparent, and match with organizational goals can improve project outcomes. Effective decision-making increases team collaboration, adaptability, resource allocation, and risk management in project issues. Participatory decision-making processes empower teams and increase ownership. Additionally, good communication helps relate organizational outcomes, decision-making processes, and leadership styles. Through open communication, leaders may quickly handle team issues, gather input, and communicate strategic goals. Create a communication culture that values transparency, careful listening, and information sharing. Leaders and team members can receive communication training to develop interpersonal skills and match with business goals. This effort improves organizational behaviour and management theory. This study supports transformational leadership theory. decision-making theory, and communication theory by linking leadership styles, decision-making processes, effective communication, and organizational outcomes. The findings demonstrate how these variables affect virtual team dynamics, dispute resolution, and goal achievement, expanding current ideas. The study also clarifies how these variables interact in China's construction industry's virtual teams. In dynamic and globalized business environments, context-specific management techniques and tactics are needed to handle virtual team problems and opportunities. Studying crosscultural leadership, decision-making, communication, and team dynamics in multinational construction firms has theoretical implications. The study recommends greater research on how situational factors impact virtual team leadership, decision-making, and communication. Future research may examine how technological changes, corporate culture, and industry-specific variables impact these traits. Conceptual models and empirical investigations can assist academics comprehend virtual work management strategies that increase team productivity and organizational performance.

#### 6.2. Limitations and Future Direction

This study has produced major contributions, but its limits should be addressed when planning future research. Limited to Chinese construction virtual teams, the findings may not apply to other sectors or areas. Virtual teams from different sectors can affect leadership, decision-making, communication, and organizational outcomes. Future research should examine different industries to assess similar links and

identify industry-specific complexities that may affect team performance and project success. Self-reported questionnaire results may also have respondent or social desirability biases. Positive or consistent participant answers may have affected outcomes validity and reliability. Future studies should use qualitative interviews or observational methods to capture nuanced perspectives and contextual elements that quantitative measurements may miss to improve results and understanding. The study's cross-sectional design makes causal inferences problematic. This is another drawback. The study identified substantial relationships between leadership styles, decisionmaking processes, communication efficacy, conflict resolution, and project success (Zaman et al., 2024). However, longitudinal or experimental research methods may reveal these associations' temporal dynamics and causal processes. Researchers can track changes over time with longitudinal investigations. This would show how leadership and decision-making styles affect team dynamics and project outcomes throughout the project. Environmental effects, workplace culture, and team linkages may have been neglected due to the study's quantitative focus. The researched relationships may be affected by this oversight. Qualitative methods can reveal team members' subjective experiences, how organizational culture affects leadership, and how external factors affect virtual team decision making processes. Qualitative study can show the intricacies of virtual team interactions and effective management practices. Future studies could examine patterns like virtual team integration using digital technology and Al. Al-powered decision support tools, virtual collaboration platforms, and predictive analytics are changing how teams collaborate, make decisions, and meet project goals. These technological advances' effects on leadership, decision-making, and communication can help organizations leverage innovation to increase team performance and adapt to changing business situations.

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