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The Interplay of High-Performance Work Practices and Project Complexity on Project Success: Examining the Mediating Role of Knowledge Sharing

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ABSTRACT

This study examines the mediating function of knowledge sharing in the association between High-Performance Work Practices (HPWPs), project complexity, and project success in the telecom vendor industry in Pakistan. Rooted on the Resource-Based View (RBV) paradigm, the study seeks to tackle the difficulties of attaining project success in progressively intricate settings. High-Performance Work Practices (HPWPs), recognized for augmenting staff competencies and engagement, are anticipated to positively affect project results; yet, the influence of project complexity frequently diminishes these initiatives. This study examines knowledge sharing as a mediator to comprehend how successful cooperation and information exchange can alleviate the adverse impacts of project complexity and amplify the beneficial influence of HPWPs on project success. Data was gathered from telecom suppliers in Pakistan via a structured survey and examined utilizing mediation analysis methods. The results indicate that knowledge sharing substantially mediates the connection between high-performance work practices, project complexity, and project success, implying that cultivating a culture of knowledge sharing is essential for addressing the challenges associated with complex projects and attaining successful results. These insights offer actionable consequences for telecommunications vendors in Pakistan aiming to enhance project management processes within a competitive and dynamic sector.

Keywords:
High-Performance Work Practices, Project Complexity, Project Success, Knowledge Sharing, Resource Based View Theory.

INTRODUCTION

In the current competitive business landscape, project success is essential for firms aiming to maintain a competitive edge. In the telecommunications sector, the constant evolution of technology developments and market needs has markedly heightened project complexity, resulting in increased hurdles in attaining project success (Shaukat et al., 2022). Telecom

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vendors in Pakistan encounter distinct obstacles stemming from the industry's dynamic nature, which is marked by intricate projects involving extensive infrastructure construction, shifting legislative mandates, and technological ambiguities (Ali et al., 2024). These difficulties frequently impede project success, impacting the overall efficacy of telecommunications vendors. Consequently, enterprises must identify methods to enhance project results while navigating the intrinsic complexity (Ali et al., 2024).

A viable strategy is the adoption of high-performance work practices (HPWPs), recognized for their ability to improve employee skills, motivation, and engagement (Bhatti et al., 2021). Nonetheless, the correlation between high-performance work practices and project success, especially in intricate situations, is still inadequately examined (Bhatti et al., 2021). Moreover, project complexity frequently intensifies communication obstacles and coordination challenges, hindering the attainment of project objectives (Hu et al., 2023). In this setting, knowledge sharing is a vital element that can connect high-performance work practices, project complexity, and project success (Bhatti et al., 2021). Knowledge sharing promotes teamwork and guarantees the appropriate utilization of skills and ideas, especially in the management of intricate projects (Bhatti et al., 2021). The mediating effect of knowledge sharing between high-performance work practices, project complexity, and project success has not been comprehensively investigated in Pakistan's telecom sector, despite its significance. This study, based on the Resource-Based View (RBV) theory, seeks to address this gap by examining how knowledge sharing mediates the relationship between high-performance work practices, project complexity, and project success among telecom vendors in Pakistan, ultimately providing insights into enhancing project outcomes in complex environments (Helfat et al., 2023).

LITERATURE REVIEW

Project Success (PS)

The concept of project success has been extensively examined in scholarly literature, with academics emphasizing its intricate and multifaceted characteristics. Project success is widely acknowledged as not being simply defined by the triple constraint criterion, usually known as the iron triangle. Shenhar et al. (2002) observed that the traditional method for assessing project success is based on the triple constraint framework, which includes scope, time, and cost. Nevertheless, researchers have investigated alternate techniques, including evaluating project success based on variables such as quality, cost, and time (Frefer et al., 2018). Several more elements have been recognized as essential for attaining project success, including

customer acceptability, stakeholder satisfaction, organizational performance and commercialization, as well as prospects and opportunities (Shaukat et al., 2022).

Timely and budget-compliant project delivery is crucial; but, contemporary success also depends on the project's alignment with stakeholder requirements, organizational strategy, and its capacity to provide long-term value (Naji et al., 2023). Contemporary projects are anticipated to be adaptable, including feedback mechanisms and iterative methodologies that facilitate modifications in fluid contexts (Naji et al., 2023). Moreover, elements such as innovation, social impact, and environmental sustainability have emerged as critical indications of a project's success, mirroring the changing expectations of enterprises and society (Naji et al., 2023).

High-Performance Work Practices (HPWPs)

High-Performance Work Practices (HPWPs) denote an extensive array of human resource management (HRM) strategies designed to improve employee performance and, subsequently, corporate results (Abboh et al., 2024). These practices generally encompass selective recruitment and hiring processes aimed at attracting and retaining highly skilled individuals, extensive training and development programs that prepare employees to meet job requirements, and performance-based compensation systems that correlate rewards with individual and organizational accomplishments (Abboh et al., 2024). High-performance work practices prioritize employee participation in decision-making, cultivating a sense of ownership and dedication, while enhancing collaboration and effective communication throughout the business (Botelho et al., 2023).

The fundamental principle of High-performance work practices is that organizations can markedly enhance their productivity, innovation potential, and overall competitive edge by investing in the development of a highly skilled, motivated, and engaged workforce (Abboh et al., 2024). High-performance work practices enhance individual employee performance and also augment the overall efficacy of teams and the larger organizational framework (Abboh et al., 2024).

Recent evidence indicates that High-performance work practices are most effective when executed as a cohesive, integrated system that corresponds with an organization’s strategic objectives and culture, rather than as disparate HR practices (Botelho et al., 2023). This alignment guarantees that the workforce is both proficient and oriented towards fulfilling the organization's long-term goals. Moreover, studies underscore the need of fostering a supportive workplace culture in which employees feel esteemed, empowered, and trusted

(Abboh et al., 2024). This setting amplifies the efficacy of high-performance work practices by establishing psychological safety, promoting innovation, and motivating people to exceed their conventional job responsibilities to advance corporate success (Abboh et al., 2024).

In the modern business environment, the notion of high-performance work practices has developed to meet the demands of progressively dynamic, global, and technology-oriented workplaces (Abboh et al., 2024). Contemporary firms are implementing high-performance work practices to emphasize continuous learning, agility, and flexibility, guaranteeing that employees are not only top achievers but also capable of adjusting to shifts in market dynamics and technological progress (Botelho et al., 2023). The proliferation of high-performance work practices emphasizes that in the contemporary rapid and competitive landscape, organizational performance is fundamentally linked to the cultivation and administration of human capital (Botelho et al., 2023).

High-Performance Work Practices and Project Success

The correlation between high-performance work practices and project success is based on the premise that an effectively managed and highly skilled workforce substantially enhances the attainment of project goals (Zaman, 2020). High-performance work practices, encompassing selective recruitment, ongoing training, employee engagement, and performance-based incentives, augment the skills, motivation, and dedication of employees (Zaman, 2020). These methods cultivate a staff that is both technically proficient and engaged, essential attributes for managing the complexities and risks of projects (Zaman, 2020). From the perspective of high-performance work practices, projects success enhanced decision-making, collaboration, and problem-solving capabilities, which are essential for adhering to deadlines, maintaining budgetary constraints, and attaining desired results (Zaman, 2020). Consequently, projects conducted in settings that utilize high-performance work practices are more likely to succeed, as these practices guarantee that teams are aligned, proficient, and driven to achieve exceptional performance (Zaman, 2020).

The resource-based view approach underscores that an organization’s internal resources, especially its human resources, are essential for attaining competitive advantage and, consequently, project success (Helfat et al., 2023). According to the resource-based view, enterprises with valuable, rare, inimitable, and non-substitutable (VRIN) resources are more likely to achieve success (Helfat et al., 2023). Within the framework of high-performance work practices, personnel are regarded as strategic assets capable of delivering the VRIN attributes essential for enduring success (Helfat et al., 2023). The expertise, competencies,

and involvement cultivated by high-performance work practices act as intangible assets that are challenging for rivals to imitate, enhancing the effective implementation of projects (Helfat et al., 2023). By implementing these high-performance practices, firms cultivate a workforce capable of adapting to obstacles, fostering innovation, and continuously achieving results, thereby directly influencing the success of their initiatives (Helfat et al., 2023). Consequently, from the perspective of the resource-based view, high-performance work practices furnish the essential human capital for both immediate project success and sustained organizational development (Helfat et al., 2023). Based on the above discussion the study first hypothesis is as follows:

H1: *High-performance work practices has a positive impact on project success.*

Project Complexity (PC)

Project complexity refers the intricate and multifarious characteristics of projects, typically defined by elements such as the quantity of stakeholders, technological obstacles, interdependencies among activities, and the degree of uncertainty (Cantarelli, 2022). Literature indicates that project complexity is widely regarded as a critical risk element that adversely affects project success. Complex projects necessitate increased resources, coordination, and problem-solving skills, rendering them intrinsically more challenging to handle (Cantarelli, 2022). Baccarini (1996) was one of the initial scholars to characterize project complexity through two dimensions: organizational complexity (the quantity of teams, stakeholders, and interactions) and technological complexity (technical uncertainty and the novelty of technology). Both dimensions complicate project execution within time, cost, and scope limits, resulting in diminished prospects for success (Baccarini, 1996).

Research indicates that elevated complexity diminishes project success rates by amplifying uncertainty and dangers (Cantarelli, 2022). Bhise (2023) discovered that when complexity escalates, project managers have difficulties in forecasting, resource allocation, and stakeholder management, all of which diminish project performance. Complex projects frequently encounter unforeseen problems, complicating adherence to established timetables and budgets, so adversely impacting total project success (Cantarelli, 2022). Moreover, Qureshi and Kang (2015) contend that project complexity impedes communication, coordination, and decision-making processes, which are essential for achieving successful outcomes. Elevated interdependency, regulatory mandates, and divergent stakeholder interests intensify this phenomenon (Cantarelli, 2022). In intricate contexts, conventional

project management procedures may be inadequate, necessitating more flexible strategies to alleviate the hazards linked to complexity (Cantarelli, 2022).

Project Complexity and Project Success

The correlation between project complexity and project success is often described as inversely proportional, indicating that increased complexity adversely impacts project success (Hu et al., 2023). Project complexity stems from multiple causes, including technology uncertainty, stakeholder quantity, task interdependencies, and environmental dynamics (Hu et al., 2023). Complex projects typically elevate uncertainty and risk, complicating project managers' ability to manage timetables, budgets, and deliverables. Research indicates that heightened complexity impairs efficient communication, resource allocation, and decision-making, all of which are essential for project success (Hu et al., 2023). Projects characterized by numerous interdependent tasks or incorporating advanced technology frequently encounter delays and budget excesses, diminishing their probability of attaining the intended results (Hu et al., 2023).

The resource-based view theory offers a valuable perspective for comprehending how companies might alleviate the adverse impacts of project complexity on success (Helfat et al., 2023). In project management, businesses with appropriate resources—such as proficient project managers, sophisticated technology tools, and strong risk management capabilities—are more adept at managing complicated projects (Helfat et al., 2023). These resources enable organizations to manage complexity by enhancing adaptability, resource coordination, and problem-solving abilities, hence increasing the likelihood of project success despite elevated levels of complexity (Helfat et al., 2023). According to the resource-based view, businesses that develop such resources can more effectively navigate the uncertainties and obstacles associated with complex projects, thereby ensuring the delivery of outputs that fit with corporate objectives, even in challenging situations (Helfat et al., 2023). According to the above discussion, the second hypothesis of the study is as follows:

H2: *Project complexity has a negative impact on project success.*

The mediating role of knowledge sharing between high-performance work practices and project success

The mediating role of knowledge sharing between high-performance work practices and project success is receiving heightened focus in both academic and practical domains (Bhatti et al., 2021). High-performance work practices, encompassing selective recruitment, extensive training, employee engagement, and performance-based rewards, cultivate a

workplace conducive to collaboration, motivation, and ongoing learning (Bhatti et al., 2021). These methods automatically promote the sharing of knowledge and experience among employees, which is crucial for efficient project execution. Knowledge sharing, characterized by the interchange of information, skills, and insights among team members, facilitates improved decision-making, augments problem-solving abilities, and fosters innovation, all of which are essential for project success (Bhatti et al., 2021). The free sharing of knowledge within a project team diminishes redundancy, enhances coordination, and expedites the resolution of complicated problems, which are essential for achieving project objectives (Bhatti et al., 2021).

Knowledge sharing serves as a mediator between high-performance work practices and project success by enabling the complete actualization of high-performance work practices' advantages (Bhatti et al., 2021). Although high-performance work practices establish the groundwork for a proficient and committed staff, their genuine influence on project performance is frequently manifested through the transfer of knowledge (Bhatti et al., 2021). Employees hired for their expertise and trained in specialized abilities may only fully contribute to project outcomes when a culture of knowledge sharing exists that benefits the entire team (Bhatti et al., 2021). Consequently, knowledge sharing serves as the essential conduit through which high-performance work practices affect project success, converting individual skills into group accomplishments (Bhatti et al., 2021).

The resource-based view theory reinforces the significance of information exchange as a mediating mechanism. Within project contexts, knowledge constitutes a vital resource, and its value is optimized through organizational sharing (Helfat et al., 2023). The implementation of high-performance work practices facilitates the widespread distribution of knowledge, allowing project teams to utilize internal skills and capabilities more efficiently (Helfat et al., 2023). Furthermore, knowledge exchange guarantees that the important human capital cultivated by high-performance work practices is utilized in manners that directly enhance project success. By synchronizing individual and group knowledge with project objectives, businesses can more effectively manage the complexities and challenges of projects, hence improving overall performance (Helfat et al., 2023). Consequently, the resource-based view emphasizes that knowledge sharing, as a resource, is crucial in converting the promise of high-performance work practices into concrete project results, so securing sustained organizational success (Helfat et al., 2023). The literature review mentioned above proposes the third hypothesis of the study, as follows:

H3: *Knowledge sharing mediates the relationship between high-performance work practices and project success.*

The mediating role of knowledge sharing between project complexity and project success

The mediating role of knowledge sharing between project complexity and project success is crucial, as complex projects often involve high levels of uncertainty, technical challenges, and interdependent tasks (Morcov et al., 2020). Knowledge sharing enables project teams to exchange critical information, solve problems collaboratively, and adapt to the evolving needs of complex projects (Morcov et al., 2020). When faced with complexity, teams that engage in effective knowledge sharing are better equipped to manage the uncertainty and interdependencies inherent in such projects, leading to more successful outcomes (Morcov et al., 2020). Knowledge sharing helps in reducing the negative impact of complexity by improving communication, fostering innovation, and ensuring that lessons learned and expertise are leveraged across the project, thus enhancing the likelihood of project success (Morcov et al., 2020).

The resource-based view theory reinforces the importance of knowledge sharing in this context. In complex projects, knowledge is a critical resource that can help mitigate challenges and risks (Helfat et al., 2023). Through effective knowledge sharing, organizations can maximize the value of their human capital and other resources, applying expertise and insights to navigate project complexities (Helfat et al., 2023). By facilitating the flow of knowledge, organizations transform complexity from a potential obstacle into a manageable challenge, ensuring that resources are applied efficiently to achieve project success (Helfat et al., 2023). The aforementioned literature review presents the study's fourth hypothesis as follows:

H4: *Knowledge sharing mediates the relationship between project complexity and project success.*

The proposed theoretical framework includes several sub-hypotheses in addition to its primary hypotheses, presented as follows:

H5: *High-performance work practices has a positive impact on knowledge sharing.*

H6: *Project Complexity has a positive impact on knowledge sharing.*

H7: *Knowledge sharing has a positive impact on project success.*

Figure 1 shows theoretical framework of the study.

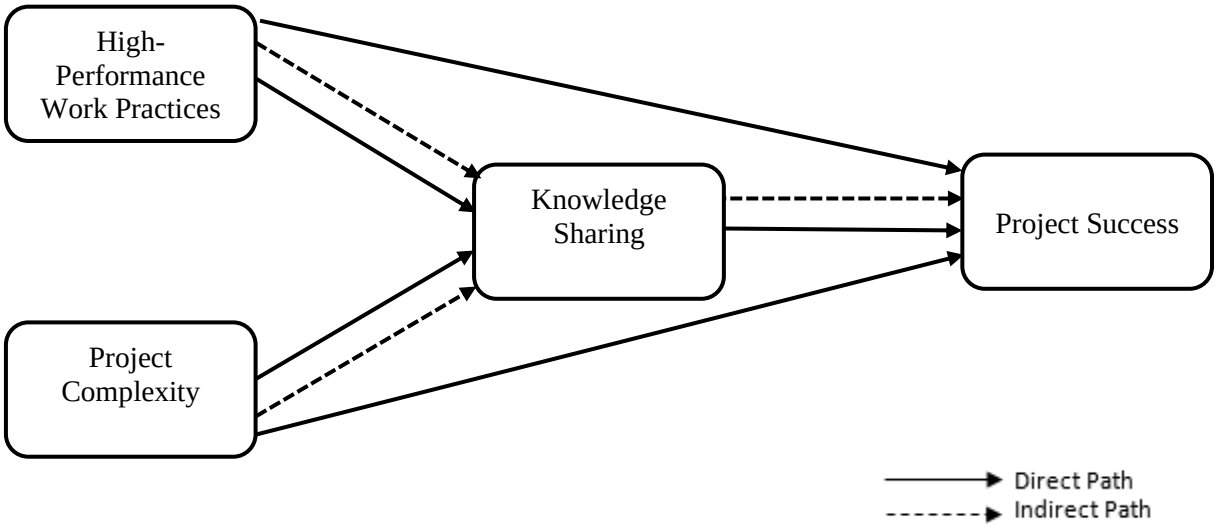

Figure 1: Theoretical Framework
Source: Author's own work

METHODOLOGY

The root of the model lies in the Resource-Based View (RBV) of the firm, primarily articulated by Jay Barney in 1991, posits that a company's competitive advantage is contingent upon its internal resources rather than external market factors. It asserts that companies can maintain a competitive edge if they have resources that are valuable, rare, inimitable, and non-substitutable (VRIN) (Helfat et al., 2023). These resources may be real, intangible, or human, and their unique combinations can distinguish a corporation from its competitors. The resource-based view posits that resources are varied among organizations and are not readily transferable or replicable, hence reinforcing the competitive advantage of those who hold them (Helfat et al., 2023). Scholars have progressively expanded this notion, contending that organizations should concentrate on their core skills and strategically cultivate their distinctive internal assets to attain sustained success (Helfat et al., 2023).

Although the resource-based view has emerged as a preeminent paradigm in strategic management, it has progressed with the incorporation of notions such as dynamic capabilities, indicating that organizations must possess the capacity to adapt and rearrange resources in swiftly changing settings (Helfat et al., 2023). Critics of the resource-based view contend that it frequently neglects external influences and occasionally grapples with the ambiguous concept of resources (Helfat et al., 2023). Notwithstanding these criticisms, the resource-based view has been extensively utilized across several industries, illustrating its effectiveness in elucidating business performance and competitive advantage (Helfat et al., 2023). This concept is essential for comprehending how well managed internal resources can lead to a firm's enduring success (Helfat et al., 2023).

Data and methods

The present study employed a quantitative methodology to investigate the hypothesized relationship between the suggested model and the prevalent technique for cross-sectional analysis in project management, utilizing a deductive approach (Joslin & Müller, 2016; Ul-Musawir et al., 2017).

The study was carried out in the telecom industry of Pakistan, specifically targeting telecom vendors Due to the substantial impact of Pakistan's telecom sector on the GDP, it was chosen as a representative sample for examining the effect of high-performance work practices and project complexity on project success with mediating role of knowledge sharing. The study used purposive sampling, building upon prior empirical investigations conducted in comparable settings (Campbell et al., 2020). The survey instrument was disseminated to participants via the authors' social network and personal connections, using both physical and electronic modes inside the Google Forms platform.

Sample and Procedure

The sample size significantly influences the research analysis. A power analysis was conducted utilizing a cross-sectional design to determine the minimum sample size necessary for achieving statistically significant results. The poll comprised 370 participants and included statistical parameters such as a p-value of 0.05, a statistical power of 0.95, and an effect size of 0.30. The research encompassed to a minimum of 189 participants (Cohen, 2016). Table 1 displays the demographic characteristics of the research.

Table 1: Demographics

Measures	Items	Frequency	%age
Gender	Male	103	54.50%
	Female	86	45.50%
Age (years)	25 – 35	93	49.21%
	36 and above	96	50.79%
Education	Master's Degree	127	67.20%
	Certification holder	62	32.80%
Work Experience	Less than 5 years	47	24.87%
	5 – 10 years	88	46.56%
	10 years and above	54	28.57%

Measures

The measures included in this study were obtained from previous research conducted in the relevant field. Participants received directives to respond to inquiries pertaining to their respective initiatives. The survey employed a 5-point Likert scale, with 1 indicating strongly disagree and 5 indicating strong agree.

Project Success (PS): A six-item scale was adopted from Latif et al. (2020). The Cronbach's alpha is 0.868, indicating high reliability of the scale.

High-Performance Work Practices (HPWPs): The present study adopted the 21-item scale of Lepak and Snell (2002) to measure HPWPs. The Cronbach alpha value of the scale is 0.900, indicating its high reliability.

Project Complexity (PC): The 3-item scale of Butler et al. (2020) was adopted to measure the project complexity. The Cronbach alpha value of the scale is 0.984, demonstrating the high reliability of the scale.

Knowledge Sharing (KS): The instrument adopted in this research to measure knowledge sharing was developed by Hooff and Ridder (2004). It comprised ten items. The reliability of the scale was assessed using Cronbach's alpha coefficient, which yielded a value of 0.945, indicating strong internal consistency.

RESULTS

Table 2: Descriptive Statistics

	Mean	SD	Data Normality		Collinearity Statistics	
			Skewness	Kurtosis	Tolerance	VIF
Project Success	2.833	0.806	0.366	1.790	-	-
High-Performance Work Practices	2.963	0.647	0.273	2.473	0.334	2.996
Project Complexity	3.115	0.979	-0.138	-0.393	0.407	2.460
Knowledge Sharing	2.878	0.839	0.069	1.693	0.575	1.739

Dependent variable: Project Success

Table 2 presents the mean, standard deviation (SD), skewness, kurtosis, and multicollinearity values of the analyzed constructs. Table 2 presents the ratings assigned by participants across all categories on a 5-point Likert scale, ranging from 1-strongly disagree to 5-strongly agree. The mean and standard deviation metrics give essential insights into the average rating and the degree of variation in the responses, respectively. The standard deviation values indicate the statistical dispersion of responses relative to the mean.

The skewness and kurtosis were evaluated to confirm the normality of the data, in accordance with Kline (2023). Data is deemed to adhere to a normal distribution if the skewness value lies within ±2 and the kurtosis value is within ±7, as outlined by Hair Jr et al. (2014) and Kline (2023). The data aligns with a normal distribution, as indicated by the skewness and

kurtosis values presented in Table 2. The variance inflation factor (VIF) and tolerance were employed to assess the presence of multicollinearity. Daoud (2017) characterizes multicollinearity as the existence of a correlation among variables. According to Daoud (2017), a variance inflation factor (VIF) of 1 signifies no connection, a VIF between 1 and 5 denotes moderate correlation, and a VIF beyond 5 suggests a significant association. A tolerance value below 0.1 signifies the presence of collinearity. The tolerance and VIF values in Table 2 indicate an absence of multicollinearity in the data.

Data Analysis

The evaluation of the component structure, reliability, and validity of the construct is conducted. The study was conducted with SPSS version 27. The hypothesis and its indirect influence were analyzed through mediation analysis using Process Macro Model 4 developed by Preacher and Hayes (2008).

Reliability and validity analysis

Subsequent to the initial part of the investigation, the latent variables were evaluated for their composite reliability (CR), convergent validity, and discriminant validity. Based on the criteria established by Fornell and Larcker (1981), the composite reliability (CR) values for all latent variables exceeded 0.90, indicating the absence of internal consistency problems. The evaluation of convergent validity was performed by analyzing the average variance extracted (AVE) values, regarded as a crucial standard. Sarstedt et al. (2016) established a threshold value of 0.5 for average variance extracted (AVE). All constructs in the current investigation had average variance extracted (AVE) values beyond 0.5, indicating no significant issues regarding convergent validity. Discriminant validity was proved by adhering to the standards set out by Fornell and Larcker (1981). Based on the aforementioned assumptions, the square root of the mean of all variables must surpass the correlation among all variables. The measures presented in Table 3 included factor loading, composite reliability (CR), average variance extracted (AVE), and the square root of AVE (SQRT of AVE). Additionally, the discriminant validity of the components was assessed in Table 4.

Table 2: Factor loading, CR, AVE, and SQRT of AVE

Construct	Items	Factor Loadings	CR	AVE	SQRT of AVE
Project Success			0.97	0.84	0.919
	PS1	0.912			
	PS2	0.932			
	PS3	0.919			
	PS4	0.903			
	PS5	0.933			
	PS6	0.913			
			0.97	0.69	0.828
High-Performance Work Practices (HPWPs)	HP1	0.912			
	HP2	0.932			
	HP3	0.919			
	HP4	0.903			
	HP5	0.933			
	HP6	0.913			
	HP7	0.712			
	HP8	0.970			
	HP9	0.726			
	HP10	0.711			
	HP11	0.949			
	HP12	0.731			
	HP13	0.713			
	HP14	0.711			
	HP15	0.656			
	HP16	0.897			
	HP17	0.711			
	HP18	0.872			
	HP19	0.885			
	HP20	-0.800			
	HP21	-0.685			
Project Complexity			0.93	0.81	0.909
	PC1	0.912			
	PC2	0.897			
	PC3	0.919			
Knowledge Sharing			0.98	0.82	0.907
	KS1	0.927			
	KS2	0.958			
	KS3	0.921			
	KS4	0.909			
	KS5	0.955			
	KS6	0.923			
	KS7	0.924			
	KS8	0.927			
	KS9	0.917			
	KS10	0.674			

Table 3: Correlation matrix with SQRT of AVE values

Constructs	PS	HP	PC	KS
PS	***0.919***			
HP	0.821**	***0.828***		
PC	0.899**	0.768**	***0.909***	
KS	0.491**	0.648**	0.542**	***0.907***

Note(s): PS = Project Success, HP = High-Performance Work Practices, PC = Project Complexity, KS = Knowledge Sharing, **.p < 0.01

Upon meticulous examination of the statistical data in Table 4, it is evident that the bold and italicized figures are diagonally arranged to signify the square root of the average variance extracted (AVE), indicating that all values in the columns are less than the square root of AVE, thereby suggesting the discriminant validity is held

Structural Model testing

An extensive evaluation of the reliability and validity of the constructs in the measurement model was conducted in the initial phase. The second stage involved evaluating the prediction accuracy and interrelationships among the variables in the structural model proposed by Hair Jr et al. (2014). Refer to Figure 2 for a graphical representation of the path diagram.

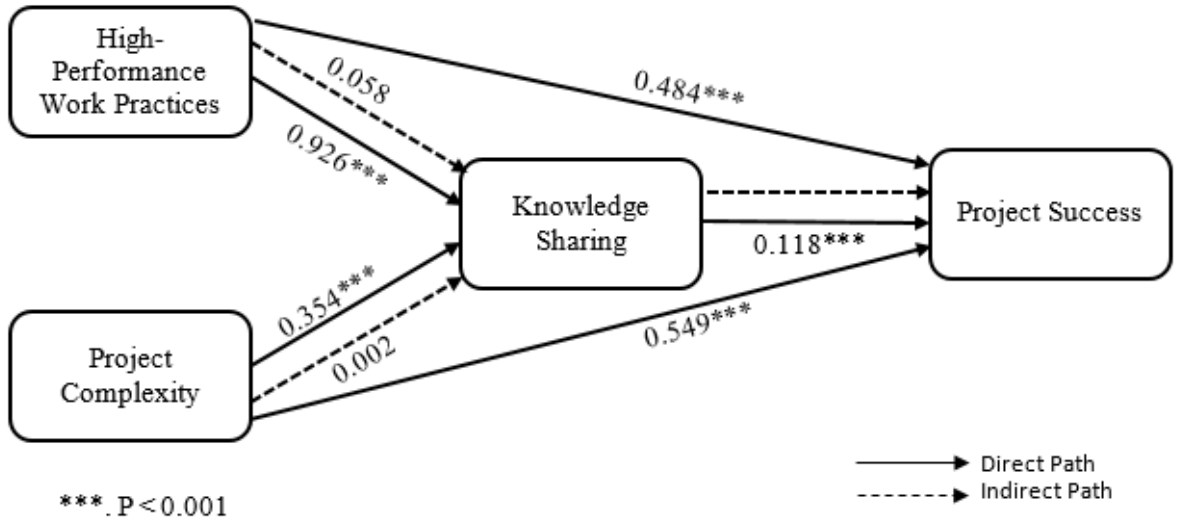

Figure 2: Path Diagram

The standardized coefficient of **H1** (β = 0.484, P < 0.001) indicates a statistically significant and positive association between high-performance work practices and project success in the structural equation model. Consequently, the primary hypothesis (**H1**) of the study has been validated. The **H2** was associated with project complexity and project success. The results indicate a positing and significant correlation, as indicated by (β = 0.549, P < 0.001).

Therefore, **H2** of the study is accepted. The sub-hypotheses (**H5, H6,** and **H7**) are directly pertinent to the knowledge sharing and project success examined in this study. The study's findings validate the **H5** hypothesis (β = 0.926, P < 0.001), indicating a direct correlation between high-performance work practices and knowledge sharing. The analysis reveals a significant and positive correlation between project complexity and knowledge sharing (β = 0.354, P < 0.001), hence validating the **H6** hypothesis. The findings of the study's **H7** indicate a strong and positive association between knowledge sharing and project success (β = 0.118, P < 0.001), hence corroborating hypothesis **H7**.

The research formulated hypotheses **H3** and **H4** to correspond with the indirect effect, specifically mediation. The researcher followed the established technique specified by Preacher et al. (2007) and performed a bootstrap analysis. Wang et al. (2017) established that the bootstrap approach is an effective strategy for accurately determining confidence intervals (CI) to assess the indirect effect. The researcher utilized a dataset of 5000 bootstrap samples to calculate 95% bias-corrected confidence intervals, ensuring the reliability of the estimations. Table 5 presents the results of the mediation study for further scrutiny and interpretation.

Table 4: Bootstrap results for Indirect effect Process Macro Model 4

	Total Effect	T	Sig.	Direct Effect	T	Sig.	Path	Indirect Effect	SE	LL 95% CI	UL 95% CI
H3: HP → PS	0.881	19.675	0.000	0.823	15.860	0.000	HP → KS → PS	0.058	0.065	-0.176	0.085
H4: PC → PS	0.740	28.009	0.000	0.738	23.403	0.000	PC → KS→ PS	0.002	0.027	-0.041	0.087

Note (s): PS = Project Success, HP = High-Performance Work Practices, PC = Project Complexity, KS = Knowledge Sharing, SE = Standard Error, LL = Lower Limit, UL = Upper Limit, CI = Confidence-Interval, Bootstrap Samples = 5000

The bootstrap analysis results demonstrate that **H3** is insignificant as indicated by the mediation effect of knowledge sharing on the relationship between high-performance work practices and project success (β = 0.058, SE = 0.065, 95% CI [-0.176, 0.085]). The bootstrap analysis of **H4** also shows an insignificant indirect effect of knowledge sharing on the relationship between project complexity and project success (β = 0.002, SE = 0.027, 95% CI

[-0.041, 0.087]). There is no mediation, as evidenced by a significant direct effect and an insignificant indirect effect (Baron & Kenny, 1986; Zhao et al., 2010).

DISCUSSION

The results of this study provide valuable insights into the relationships between high-performance work practices, project complexity, knowledge sharing, and project success within the telecom vendor sector in Pakistan. The findings indicate that high-performance work practices have a significant and positive direct impact on project success, which supports the first hypothesis (**H1**). This result aligns with previous research, suggesting that effective high-performance work practices enhance employee engagement, motivation, and skill development, all of which contribute to better project outcomes (Bhatti et al., 2021). Similarly, the second hypothesis (**H2**) was validated, as project complexity was also found to have a positive and significant association with project success. This finding challenges the conventional notion that complexity necessarily hinders project outcomes and suggests that, in certain contexts, complex projects can lead to successful outcomes, perhaps due to enhanced capabilities in managing intricate processes and stakeholder demands (Hu et al., 2023).

The study further explored the role of knowledge sharing as both a direct influence and a mediator in the relationship between HPWPs, project complexity, and project success. The results confirmed that knowledge sharing plays a critical direct role, as demonstrated by the positive and significant correlations between HPWPs and knowledge sharing (**H5**), project complexity and knowledge sharing (**H6**), and knowledge sharing and project success (**H7**). These findings highlight the importance of fostering a knowledge-sharing culture in complex project environments, where the exchange of expertise and insights can enhance team collaboration and problem-solving abilities, ultimately improving project success. All three hypotheses results are aligned with prior research findings of Bhatti et al. (2021) and Hu et al. (2023).

However, the mediation analysis provided mixed results. Contrary to expectations, the mediating role of knowledge sharing in the relationship between high-performance work practices and project success (**H3**) was found to be insignificant. Similarly, the mediation effect of knowledge sharing on the relationship between project complexity and project success (**H4**) was also insignificant. These findings suggest that while knowledge sharing is critical as a direct factor, it does not mediate the effects of high-performance work practices or project complexity on project success (Bhatti et al., 2021; Hu et al., 2023). This could

imply that the positive impacts of high-performance work practices and project complexity on project success are strong enough on their own, without needing to pass through knowledge-sharing processes. Alternatively, it may suggest that other factors not captured in this model could be playing a mediating role (Bhatti et al., 2021; Hu et al., 2023).

CONCLUSION

This study elucidates the impact of high-performance work practices, project complexity, and knowledge sharing on project success in the telecom vendor sector of Pakistan. The results indicate that both high-performance work practices and project complexity exert substantial direct effects on project success, underscoring the significance of employee involvement and proficient management of intricate initiatives. Moreover, knowledge sharing surfaced as a critical direct factor positively correlated with project success, underscoring the importance of cultivating a collaborative and knowledge-centric work environment.

The mediation analysis indicated that knowledge sharing does not mediate the relationships between high-performance work practices, project complexity and project success, implying that although knowledge sharing is significant, the direct effects of high-performance work practices and project complexity on project success are unaffected by its influence. The results indicate that businesses ought to prioritize the implementation of high-performance work practices and the effective management of complexity, while fostering a culture of knowledge sharing to enhance project success. Subsequent research ought to investigate supplementary mediating or moderating factors that could elucidate the interactions between these variables. This study offers actionable insights for telecom suppliers in Pakistan, presenting techniques to improve project success in a competitive and complicated business.

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