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Moderation of Uncertain Circumstances among the relationships of Strategic Management and Adaptation Challenges on Operational Efficiency of Construction Firms

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Abstract

The purpose of this study is to examine the relationships between strategic management and adaptation challenges on the operational efficiency of construction firms. In addition, the study considers the moderating role of uncertain circumstances between strategic management and adaptation challenges on the operation efficiency of construction firms. Using a quantitative approach, the sample of 129 survey questionnaires from South Punjab's construction firms was collected. The findings showed that strategic management and adaptation challenges have a significant positive impact on operational efficiency. In addition, uncertain circumstances moderate between strategic management and adaptation challenges. Both theoretical and practical contributions are also considered. The current study offers a significant contribution to the existing literature by empirically analyzing how strategic management and adaptation challenges influence operational efficiency with the moderation of uncertain circumstances in the construction industry of Pakistan.

Keywords: Strategic Management, Adaptation Challenges; Operational Efficiency; Uncertain Circumstances, Construction Firms

Introduction

The construction sector is playing a vital role in the economic development of Pakistan. The current "Economic Survey of Pakistan" depicts that the industrial rate of growth is 9.1% in 2017 and also 2.7% contribution towards Pakistan's GDP (gross domestic product) (Economic Survey 2017, 2018). The construction sector is facing many challenges and opportunities. The rate of increase of population is about 7.4 billion, whereas the expected population of Pakistan is to

increase to 265.6 million by 2030 and 344 million by the mid of 2050. That's why Pakistan is sixth biggest at the sixth country in the world (World Population Data Sheet, 2017) and with the annual expected growth rate, it will make Pakistan the fourth largest population on earth by 2050. (Statistics, 2017) Whereas, in 2009 the estimated backlog of housing units was 7.57 million (Choudhry & Iqbal, 2013). The housing backlog units associated with the construction industry only, represent that the infrastructure of Pakistan has enormous investment potential, including building, irrigation, oil, dams, power, and gas sectors. If the construction organizations and projects are not managed and supervised properly, can cause failure in attaining the essential objectives and outcomes, consequently increasing costs, time lags, deficiency of quality, and problems of facilities.

Therefore, there is a need to consider the importance of strategic planning, management, and adaptation under unforeseen circumstances facing the construction industry to establish guidelines and solutions. It may develop the techniques to overcome the issues and problems and also identify the challenges for effective strategic management and adaptation in the construction sector of Pakistan.

Pakistan's construction industry is distressed by higher fatality rates due to erratic site conditions, varied human behavior, and unsafe strategies and procedures ((Khan et al., 2015). The construction industry needs to create and innovate techniques and strategies to deal with unforeseen circumstances. The process of construction is complex that is affected by factors. To work efficiently, the processes need to be balanced and controlled properly. There is a need for strategic focus and adaption of organizational strategic viewpoint that increases the operational efficiency of the organizations. Effective strategic management and adaptation are also one of important factors that uphold organizations to survive and go expand. Hence, it is possible to getting success, the organization is required to develop incessantly, monitor execute, and evaluate the strategies even under uncertainty.

Strategic management is a broad continuous process that contains ascertaining organizational objectives and mission within the internal and external environment (Athapaththu, 2016). Strategic Management creates an organizational approach to be more proactive rather than reactive to pledge and control the activities for its guaranteed future success. Now the benefits of strategic management are realized and valued by most organizations (David, 2011). Organizational adaptation is a "dynamic process of adjustment to the change and environmental uncertainty, of maintaining an effective alignment with the environment while internal inter-dependencies are efficiently managed" (Miles & Snow, 1978). Whereas adaptation strategy involves particular ways to make adjustments, as it acquires to subsist and capitalize within the uncertain circumstances. (Morris, 2001) . From risk perception, uncertainty can negatively influence opportunities and as an event create beneficial influences on operational efficiency. So uncertainty has both negative and positive impacts on the organization's outcomes and performance. Uncertainty can appear from both internal and external sources (Ssempebwa, 2014). Always those organizations successful which acclimate change not only quickly even they change smartly, but are the changes which increase performance in the long run. (Carley, 1998). The time trend to acclimate is positively linked with performance (Morris, 2001).

Therefore, this study focuses on the construction sector of Punjab-Pakistan in terms of operational efficiency in relation to strategic management and adaptation under unforeseen circumstances. Thus, the primary objective of the study is to empirically investigate the relationship between strategic management and adaptation challenges faced by the construction industry of Pakistan on their operational efficiency and by using uncertainty management theory, further investigate the moderation of uncertainty between strategic management and operational efficiency.

Literature Review

Strategic Management & Adaptation Challenges and Operational Efficiency

The construction sector is one of the important pillars of the world economy. It shows a significant role in the economic and development processes of any country, particularly in developing countries (Bakar et al., 2008). Recently, Pakistan is relatively enjoying robust growth in various construction activities but still, there is unanimity on some generic issues that infested the construction industry. Nowadays, the construction sector is the second largest industry after the agriculture in economy of Pakistan. Around 30-35% of employment directly or obliquely is associated with the construction industry. Hence the construction sector of Pakistan has significant potential for economic revival (Rizwan, 2008). Strategic management and adaptation in construction firms make the organizational approach to be more positive to pledge the activities to maximize their operational efficiency (David, 2011).

H1: Strategic Management & Adaptation Challenges have a significant impact on Operational Efficiency

Management and Leadership Commitments

The top management and leadership are key actors who play a significant role in strategic communication (Aaltonen & Ikävalko, 2002) which is essential for successful strategic management and adaptation. If management is not dedicated to their role and responsibilities then the subordinates will not get mandatory support and guidance in strategic direction. The top-level leadership and management's commitment plays a pivotal role in strategic implementation (Rašković et al., 2013). Strategic management and adaptation challenges emanate from the leadership of an organization (Awino, 2002). The top management of an organization has strong insights to avoid uncertainty (Thau et al., 2008) because they have the motivation and potential to effect changes (Chongwony & Theuri, 2017). For successful strategic management and implementation, one of the main challenges is to ensure and direct the capabilities of personnel for business understanding regarding new strategic development, thus, the need for effective and efficient management outweighs other aspects (Bartlett & Ghoshal, 1996). Whereas, stakeholders involved at all levels must be welcomed and engaged in effective strategic management along with the top leadership (Bakar et al., 2008). If the management team is more open in communicating their vision, goals, and strategies, it may develop the awareness for each employee to understand their position to get success as a team (Chongwony & Theuri, 2017).

H1_a: There is an impact of Management & Leadership Commitments on Operational Efficiency.

Communication Process

The communication process is a significant characteristic of strategy management and adaptation. Communication entails information and knowledge sharing, active involvement, and demonstration of strategic processes and outcomes. (Miniace & Falter, 1996). Organizational leadership aligns and coordinates the different disciplines by communicating and establishing clear goals and objectives within an organization. (Chongwony & Theuri, 2017). The emphases of uncertainty management theory are on the uncertain experiences of individuals, which are linked to their communication actions and behaviors. In this regard, individuals sometimes seek to diminish or maintain uncertainty by involving in several communication strategies such as finding or avoiding knowledge and information or acclimating to unremitting uncertainty (Brashers & Russell, 2000). The uncertainty approaches plays a vital role in determining the employee voice expression and behavior (Detert & Treviño, 2010) So uncertain environment can also influence the communication process as, employee voice behavior is communicational (EW et al., 2011). The UMT provides the

theoretical basis to express how employees manage uncertainty while communicating (Takeuchi & Chen, 2012) and this theory also proposes the relationship of employee's feelings with the communication process (E.AllanLind & Bos, 2002).

H1_b: There is an impact of Communication Processes on Operational Efficiency.

Policy Conflicts

Conflict is a dynamic and active process as it takes time to occur and is routed through various stages (Spaho, 2013). Conflict management is very important in strategic development and execution. It increases the organization's performance and outcomes more effectively (Posthuma, 2011). It also encourages the workforce to be more productive and innovative at work (Posthuma, 2011). Uncontrolled or poorly controlled conflicts create a breakdown in believe and a loss of efficiency and productivity (Dontigney & Media). To avoid policy conflicts, companies are required to adopt transparent laws and regulations to ensure clarity and fairness in compensation practices (Isa, 2015).

H1_c: There is an impact of Policy Conflicts on Operational Efficiency.

Organizational Culture

Organizational culture is very important in strategic management and adaptation because it provides the basis from which strategy comes into view. To get continuous support for managing and acclimatization strategies, it must be standardized and coordinated with organizational culture because these are beliefs that exist within an organization. (Mehta & Krishnan, 2004). A new strategy begins with an understanding and insight into organizational culture and concludes with a cultural modification to facilitate and welcome the strategy. For necessary management and adaptation of strategies, culture allows organizational adaptive behavior. The major barriers in the strategy implementation seem to be behavioral and cultural, including the lack of commitment and ownership and substandard integration of programs and activities. (Heskett, 2012). According to past research studies UMT depicts that under unforeseen circumstances, fairness judgments under organizational culture have a stronger influence on various results (Lind et al., 2000). When the level of environmental uncertainty is high, it will affect the workforce and staff performance (Tangirala et al., 2006) and as a result, it may influence the organizational operational efficiency.

H1_d: There is an impact of Organizational Culture on Operational Efficiency.

Staff Training and Development

Generally, the construction sector does not support the practices of strategic management and implementation tools. Expected reasons for this shortfall include a deficit in skills and competency levels which is necessary for the utilization of such techniques and tools (Chongwony & Theuri, 2017). To cope with such gaps staff training and development are significantly prominent factors. Though, *training* is an effort to support and help personnel in the workplace to improve their aptitudes, knowledge, and capabilities to attain organizational objectives and goals. (APPIAH, 2010). Therefore, staff training and development is an organized and planned effort by leadership and management particularly to accomplish the organizational targets (Ackah & Agboyi, 2014). Training and development positively influence the performance of the workforce as well as the operational efficiency of the organizations by enhancing the abilities and skills of staff (Harrison, 2002), training activities and organizational performance are positively associated with each other. (Vinesh, 2014). So, personnel training maximizes organizational efficiency and effectiveness (Khan et al., 2011). Hence, organizations need to develop continuous plans and schemes for staff training and development, thus not waiting for happening of performance and expertise gaps.

H1c: There is an impact of Staff Training & Developments on Operational Efficiency

Strategic Management & Adaptation Challenges and Uncertainty

According to Taslak, the identified problems which impede the success of strategic verdicts associated with the management and implementation of strategic decisions include; strategic planning requires more time as compared to its accomplishment; uncertain environmental factors; other deeds that divert attention from execution; unidentified problems and not informed earlier to leadership and management; no active participation of important decisions makers in the strategic processes (Taslak, 2004), Ineffective leadership and management, policy conflicts, unclear and uncertain strategies, lack of workforce commitments and inadequate resources (Veetile,2008); (Chongwony & Theuri, 2017).

Uncertainty and Operational Efficiency

From risk perception, uncertainty has a negative impact on the outcomes or opportunities as events have beneficial influences on operational efficiency. So uncertainty has both negative and positive impacts on the organization's outcomes and performance (Ssempebwa, July 2014). To deal with unforeseen circumstances, strategic management, and adaptation are important owing to the high level of effectiveness of adaptive changes with more possibility of performance-enhancing, generally that can enhance organizational operational efficiency (Levinthal & Marino, 2010).

Moderating Role of Uncertainty

It has been revealed that uncertainty is more complex than generally assumed (Brashers, 2001). When uncertainty is addressed as a threat, a person attempts to avoid and reduce its impacts and when it appears as an opportunity, a person may attempt to maintain it or seek ways to create and maintain more uncertainty (HOGAN & BRASHERS, 2015). So, the construction industry needs to diversify its strategies (Buys & Rooyen, 2014) to pledge and control uncertainty.

H2: Uncertain factors moderates the relationship between Strategic Management & Adaptation Challenges and Operational Efficiency.

Research Methodology

Sample and Procedure

The top executives and employees of construction enterprises in Lahore city were given a batch of 200 questionnaires at random. But we only got 152 questionnaires. The response rate was 64.5% as 129 of these responses were used for data analysis and the rest responses were eliminated owing to missing and similar responses. The responders received assurances that their participation would be strictly secret. Males made up 78.3% of the sample overall (129 cases), and females made up 21.7%. According to their level of education, 73% of respondents had an undergraduate degree, 18% had a master's degree, and 2% had an MS or M.Phil. whereas, 58% of respondents reported having five years of experience, 39% reported having five to ten years, and 3% reported having between ten and fifteen years.

Measurements

All measurement scales were taken from previously published literature and modified. The response was gathered using seven levels of the Likert scale i.e., strongly disagree, disagreed, slightly disagree, neutral, slightly agree, agree, and strongly agree. In this particular research study, the strategic management and adaptation challenges comprise five sub-constructs: management and

leadership commitments, policy conflicts, communication processes, organizational culture, and staff training & development. Eight items scale by Chongwony and Theuri (2017) was adapted for management and leadership commitments, four items scale by Dontigney et al. and Spaho (2013) was adapted for policy conflicts, seven and five items scale by Chongwony and Theuri (2017) was used to measure communication process and organizational culture respectively and seven items scale of Vinesh (2014) and Khan, Khan, & Khan (2011) for Staff Training & development was used to analyze staff training and development. The constructs of strategic management and adaptation challenges were elaborated using a total of 31 components. The concept of operational efficiency was measured by employing a four-item scale adapted from S.P., (2014) and Zhang (2016). Eight items scale of Gjerde (2017) and Harvett (2013) was used to elaborate on uncertainty.

Data Analysis and Results

Descriptive Analysis

Table 1. represents the averages (means) and ranges (standard deviation) of all the variables.

Sr. #	Variables	Mean	Standard Deviation
1.	Strategic Management & Adaptation Challenges		
a.	Management Leadership & Commitments (MLC)	4.5426	.82658
b.	Communication Process (CP)	4.9347	.03833
c.	Organizational Culture (OC)	4.9189	.64547
d.	Policy Conflicts (PC)	5.4167	.89886
e.	Staff Training & Development (STD)	4.7946	.70118
2.	Operational Efficiency (OE)	4.8295	.92491
3.	Uncertainty (UC)	4.4641	.31066

Table 1: Means and Standard deviations

Table 2. displays correlations between the various variables. At 0.01 and 0.05 levels, every single correlation between the variables is significant. There is a positive correlation among all variables except policy conflicts with operational efficiency and management leadership and commitments.

Sr. #	Variables	1.	2.	3.	4.	5.	6.	7.
1.	Operational Efficiency (OE)							
2.	Management Leadership & Commitments (MLC)	.582**						
3.	Policy Conflicts (PC)	.163*	.164*					
4.	Communication Process (CP)	.394**	.282**	-.012				
5.	Organizational Culture (OC)	.541**	.236**	.616**	.174*			
6.	Staff Training & Development (STD)	.604**	.717**	.018	.700**	.347**		
7.	Uncertainty (UC)	.575**	.351**	-.121	.748**	.106	.724**	

** . Correlation is significant at the 0.01 level (2-tailed) ($p < 0.01$).

* . Correlation is significant at the 0.05 level (2-tailed) ($p < 0.05$).

Table 2: Correlations

Measurement Model

In this study, independent and dependent variables were management and leadership commitment (MLC), organizational culture (OC), staff training & development (STD), Communication process (CP), and operational efficiency respectively.

Multiple Regression Model 1 (without moderating variable)

SPSS was used to conduct the multiple regression of the research study model. Table 3. represents the model without moderating factor. Where R- square value 0.396 represents that strength of independent variables influences the performance of dependent variables by 39 %.

Research Model 1	Study	R	R Square	Adjusted Square	R	Std. Error of the Estimate
(Without moderation)		.630 ^a	.396	.351		.88733

Table 3: Research Model Summary

Table 4. exhibits the analysis of the variance of research study model 1, F-value 8.800, and significance value 0.000 represents the fitness of the research model.

Research Study Model 1

(Without moderation)	Sum of Squares	df	Mean Square	F	Sig.
Regression	34.643	5	6.929	8.800	.000 ^b
Residual	52.753	67	.787		
Total	87.396	72			

Table 4: Analysis of Variance- ANOVA ^a

Table 5. represents the significance level between strategic management and adaptation challenges (independent variable) and operational efficiency (dependent variable). The confidence level is greater than 95% of all variables, and the significance value for each variable was less than 0.05.

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.377	.508		8.930	.000

Management Leadership & Commitments (MLC)	.241	.204	.134	6.184	.000
Policy Conflicts (PC)	.106	.141	.105	3.747	.002
Communication Process (CP)	.356	.109	.109	6.665	.000
Organizational Culture (OC)	.402	.192	.150	5.521	.000
Staff Training & Development (STD)	.401	.139	.588	5.744	.000

Table 5: Coefficients ^a

Multiple Regression Model 2 (uncertainty as a moderating variable)

In this research study model, independent variable, the five sub-constructs of strategic management and adaptation challenges; management and leadership commitment (MLC), organizational culture (OC), staff training & development (STD), communication process (CP), and operational efficiency as dependent variables and uncertainty taken as a moderating factor.

Table 6. exhibits that the R-square value of research study model 2 higher than research model 1. It depicts that uncertainty (UC) moderates the relationship between strategic management and adaptation challenges and the operational efficiency of construction firms.

	R	R Square	Adjusted R Square	Std. Error of the Estimate
Research Model2	.651 ^b	.424	.372	.87322

Table 6: Research Model Summary

Table 7. exhibits the analysis of the variance of research study model 2, F-value 8.102 and significance value 0.000 represents the fitness of the research model.

Research Model 2	Sum of Squares	Df	Mean Square	F	Sig.
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Regression	37.069	6	6.178	8.102	.000 ^c
Residual	50.326	66	.763		
Total	87.396	72			

Table 7: Analysis of Variance-ANOVA^a

Table 8. represents the significance level between strategic management and adaptation challenges (independent variable) and operational efficiency (dependent variable) and uncertainty as moderating variables. The significance value of all variables was recorded as less than 0.05 and the confidence level is more than 95%.

Research Model 2	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.386	.404		7.275	.000
MLC	.259	.201	.144	5.289	.002
CP	.356	.107	.124	6.665	.000
PC	.058	.141	.058	3.410	.000
OC	.402	.192	.111	5.521	.000
STD	.760	.139	.557	5.462	.000
UC	.452	.152	.175	6.252	.000

Table 8: Coefficients ^a

T-values show a significant relationship with operational efficiency including uncertain circumstances (UC) and exhibit that moderation exists between the research variables of this study model. Thus, the relationship between strategic management, adaptation challenges, and the operational efficiency of construction companies should be considered fully moderated by uncertainty.

Discussion

The main goal of this study was to investigate the empirical relationship between strategic management and adaptation challenges on the operational efficiency of construction firms. Another objective was to measure the moderation of uncertain circumstances among the relationships. The results of this study have verified the positive and significant impact of strategic management dimensions namely management, leadership & commitments, The results were consistent with the findings of extant studies (e.g., Harrison, 2002; Khan, Khan, & Khan, 2011; Miniace & Falter, 1996; Chongwony & Theuri, 2017).

Multiple Regression Model 1 (without moderating variable)

Constructs	R	R ²	Beta	SE	Sig.
	.630a	.396			
MLC---->OE			.134	.204	.000
CP---->OE			.109	.109	.000
PC---->OE			.105	.141	.002
OC---->OE			.150	.192	.041
STD---->OE			.588	.139	.000

Multiple Regression Model 2 (uncertainty as a moderating variable)

	.651b	.424			
MLC---->OE			.144	.201	.002
CP---->OE			.124	.107	.000
PC---->OE			.058	.141	.000
OC---->OE			.111	.192	.001
STD---->OE			.557	.139	.000

UC--->OE	.175	.152	.009
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Table 9: Comparison between Research Study Model 1 (without moderation) and Model 2 (with moderation)

The research findings supported the positive and significant influence of strategic management and adaptation challenges on the operational efficiency of construction firms under uncertainty, i.e. The value of R-square shows that there is 39 % (model 1) variation due to the strategic management and adaptation challenges and remaining variation is due to the uncontrollable factors in research model 1. Whereas, in research model 2, multiple regression with moderation, the value of R-square increases with uncertainty and variance increases to 42 % (model 2). It is concluded that uncertain factors significantly moderate the relationship between strategic management & adaptation challenges and operational efficiency.

This study has further tested the positive and significant relationships of staff training and development, organizational culture, communication process, and management and leadership commitments as sub-construct of strategic management and adaptation challenges with the operational efficiency of construction firms as also supported by the prior studies. The prior studies show that staff training & development plays a critical role to endow employees with the required skills and knowledge. It positively influences the productivity of the workforce and the performance of the organizations (Harrison, 2002) by enhancing the abilities and competency of organization teams. So, personnel training and developments help in maximizing organizational efficiency and effectiveness (Khan, Khan, & Khan, 2011). Organizational culture is also important to motivate employees, constructing work culture and standards as well as helping to set performance criteria and paradigms. Communication entails information and knowledge sharing, active involvement, and demonstration of strategic processes (Miniace & Falter, 1996). Organizational leadership aligns and coordinates different disciplines by communicating and establishing clear goals and objectives within an organization (Chongwony & Theuri, 2017). The top management of the organization has strong insights to avoid uncertainty (Thau, Bennett, Mitchell, & Marrs, 2008) as they have the motivation and potential to affect changes (Chongwony & Theuri, 2017).

Policy conflicts as sub-construct of strategic management and adaptation challenges have a significant and positive relationship with operational efficiency. Uncontrolled policy conflicts create a believe failure and loss of efficiency and productivity (Dontigney & Media). Policies are considered an integral part of projects, in an organization top management and leadership develop effective policies and standards to achieve desired goals and objectives. Organizations are required to adopt laws to ensure transparency and clarity in compensation practices (Isa, 2015) to avoid policy conflicts. Numerous past studies also reported, policy conflict management promotes the efficiency and performance quality management of the organization (Isa, 2015).

Moreover, existing literature studies have discussed strategic management practices (Athapaththu, 2016) and concepts about their contributions (Aithal, 2018) in organizations. Further, current studies have also reported the combined effect of strategic management and adaptation in organizations (Schindehutte & Morris, 2011; Chakravarthy, 1982) in various organizations. Hence, construction organizations are required to constantly develop, monitor, execute, and evaluate strategies to enhance operational efficiency and the same must continue ever under uncertainty. This study found concluded a significant relationship between strategic management and adaptation challenges with the operational efficiency of construction firms.

Theoretical Implications

The conclusions of this specific research study have many theoretical implications, with a focus on the impact of strategic management and adaptation challenges on operational efficiency and performance that have not been acknowledged in the context of the construction sector, particularly in Pakistan. Thus, the theoretical evidence on strategic management practices, adaptation challenges, and operational efficiency in the context of the construction sector has been reinforced by the empirical findings of this study. Second, there exists a limited dialog on the impact and challenges of strategic management. Further, few combined research studies are available on strategic management and adaptation in construction firms. Whereas, no research study as per the researcher's knowledge is done on the strategic adaptation challenges under an uncertain environment in the construction industry context, especially in Pakistan. Hence, the current study work has added limitations to the literature by utilizing uncertainty management theory (UMT) (Brashers, 2001) predictions as the predominant framework to elaborate the theoretical underpinning for strategic management and adaptation under uncertainty in the construction sector. According to UMT, the uncertainty source can be either self-inflicted or environmental (Bos & Kees, 2001), when personnel are laid off may undergo environmental uncertainty (Tha et al., 2007). Current approaches have led theoreticians to adopt an uncertainty management model, formally which was expressed in uncertainty management theory (Rosenberg, 2014).

Hence, this study has empirically tested the moderating effects of an uncertain environment on the relationship between strategic management and adaptation challenges and the operational efficiency of construction firms.

Managerial Implication

This study will open new avenues for project managers and experts to highlight the importance of strategic management and the need to address its challenges through adaptation policies and schemes. It is also helpful for construction firms including design, contractors, construction, material procurement, etc. This research study will be beneficial to analyze and develop the guidelines proactively under uncertainty for strategic management and adaptation challenges to enhance the efficiency of the construction industry.

Furthermore, this research study provided additional insight into how to improve the operational efficiency of construction-related companies, that the policy conflicts, communication processes, staff training & developments, organization culture, management leadership, and commitments must be managed under uncertain factors to achieve the desired goals and objectives. This study is also helpful for other industries and sectors to make projects successful and to accomplish the targeted objectives by implementing proposed research variables appropriately.

Based on the research study conducted on the relationships between strategic management, adaptation challenges, and operational efficiency of construction firms, the following conclusions can be drawn:

1. The results of the study present empirical evidence that the use of strategic management techniques increases the operational efficiency of construction-related organizations. It demonstrates that firms are more likely to attain higher levels of efficiency when they effectively correlate their strategies with their operational processes.
2. The study results indicate that the operational efficiency of construction enterprises is positively impacted by adaptation challenges like changing circumstances in the market, advancements in technology, and regulatory constraints. This emphasizes the significance of actively addressing and adapting to these challenges to improve overall efficiency.

3. The study shows that the relationship between strategic management and adaptation challenges on operational efficiency is moderated by uncertain situations. This is why, under various levels of uncertainty, the effectiveness of strategic management practices to overcome adaptation challenges and improve operational efficiency may vary.
4. The current study empirically assesses the relationships between strategy management, adaptation challenges, and operational efficiency in Pakistan's construction sector to contribute to existing literature. The results provide valuable information on the factors influencing operational efficiency and serve as a basis for future research in this area.
5. The outcomes of this study have implications for Pakistani construction companies. Construction companies can create more effective strategies to improve their performance by comprehending the positive impact of strategic management and adaptation challenges on operational efficiency. Additionally, understanding the moderating impact of uncertain conditions may support organizations in navigating the intricacies of the construction sector and influencing decisions that will improve their operational efficiency.
6. The findings of this study have significance for Pakistani construction companies. Organizations can better comprehend the issues they confront and establish strategies that effectively manage uncertainty by recognizing the moderating role of an uncertain environment. The results of this study provide construction companies with helpful recommendations regarding methods to increase their operational efficiency and adaptability in the context of uncertainty.

By examining the impact of strategic management, adaptation challenges, and an uncertain environment on operational efficiency, these conclusions contribute to theoretical knowledge in the construction sector, particularly in Pakistan. The findings of the study offer valuable insights for both researchers and practitioners who are engaged in strategic management and adaptation within the construction sector.

Limitations and Future Research Directions

There are some limitations in this research study: First, to analyze the relationships, this study only consider strategic management and adaptation challenges. However, researchers may investigate these relationships in future studies by taking into account the uncertain adaptation, alignment, and coordination challenges that arise within organizational limits (Vedran Zerjav, 2018). Second, the data were collected at one time which may lead to the common method and technique bias i.e., cross-sectional data. Future researchers may gather data over some time to lessen common process bias i.e., longitudinal data. Third, this study has considered construction firms as the unit of analysis and future researchers might perform the research study by adopting an organizational design perspective (Gil & Baldwin, 2014) or practices (Nicolini, 2012). Specifically, for the local construction industry (Aif et al., 2012). Furthermore, this research model can be tested in other settings. More contextual variables can be included in the theoretical framework, such as organizational performance standards, leadership styles, time horizon, and employee retention on the project's success and operational efficiency.

Conclusion

The current study examined the relationships of strategic management and adaptation challenges on the operational efficiency of construction firms. Moreover, the study measures the moderating strength of uncertain circumstances between The findings supported the hypothesized relationships and found that strategic management and adaptation challenges have a significant positive impact on operational efficiency. The study found that uncertain circumstances strengthen the relationship between strategic management and adaptation challenges on operational efficiency.. This study

contributed to the existing literature by empirically analyzing the role of strategic management and adaptation challenges influence operational efficiency with the moderation of uncertain circumstances in the construction industry of Pakistan. The current study suggested the managers of the construction organizations to develop strategies that effectively manage uncertainty and emphasizes the significance of actively addressing and adapting to these challenges to improve overall efficiency. The current study suggested to future studies to investigate other moderating variables such as alignment, and coordination challenges and consider other industries as unit of analysis.

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