



**RESEARCH PAPER**

**From Dynamic Capabilities to Success: Unpacking the Dual Mediation of Agility and Leadership in Driving Project Portfolio Performance**

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**ABSTRACT**

Agility is crucial for a project portfolio to succeed in a dynamic environment, according to recent literature. Three components make up dynamic capabilities: identifying market and technological opportunities, taking advantage of those opportunities by giving them priority and fully utilizing them, and regularly rearranging resources and organizational structures. Even though prior research has emphasized the significance of dynamic skills for project portfolio agility (PPA), it has hardly ever conducted an empirical analysis of these capabilities. This study utilized a multi-informant approach to collect cross-industry sample data from 400 project portfolios, examining the relationship between project portfolio agility and success, and dynamic capabilities. The results demonstrate that dynamic capabilities and portfolio agility have a positive association, with portfolio agility acting as a mediator between dynamic capabilities and the success of portfolio. The findings emphasized how dynamic skills are crucial to portfolio agility. Also, it adds to the knowledge base regarding portfolio agility and project portfolio management.

**Keywords:**      s

**Introduction**

In Pakistan, the Small and Medium Enterprises (SME) plays a pivotal role in the economic development as drivers of innovation and job opportunities. As these enterprises are constantly challenged by the changing requirements and environment, studying the critical factors contributing to their sustenance becomes a must. There is a need to see how portfolio success is affected by dynamic capabilities and what mediation role does leadership capabilities and portfolio agility play in this dynamic within the context of Pakistan's SME landscape.

Dynamic capabilities play a critical role that precedes portfolio agility, as they help organizations move around the dynamic environment (Mahmood et al., 2022). Dynamic capabilities enable the organization for effective resource allocations and find new ones when need arises (Teece, 1997), this is necessary as in the context of the SME sector the resources are often constrained so the ability of the organization to be flexible and adjust according to the market changes becomes crucial for its survival and success (Eisenhardt & Martin, 2000). So, we can say that through dynamic capacities, an organization can fully utilize the potential of its current present resources and utilize them. If due to the changing environment, the need for newer resources arises which the organization might lack these capabilities help the organization find a solution to fill this gap. The dynamic capabilities are defined in three dimensions including: sensing meaning ability to pin point the change in the current environment i.e. discover how the conditions have changed in the environment from the pervious to the new stage this basically creates a gap which provides opportunities to innovate and, seizing meaning how to fill the gaps and get benefits from then and

reconfiguring means aligning our resources to adapt to the change. In this, we can have technology in the hospital sector as an example of how patient record keeping is switched to a more modernized method, so hospitals identify this change, seek its benefits and to exploit them uses its resources to switch to this approach of record keeping. So, by the help of these capabilities, an organization can adapt its portfolios to the change i.e. be more agility and ultimately increases their chances of Success.

Moreover, portfolio management, the main function of which is to pinpoint the project achieving organizational goals, mission and vision (Cooper, 2001). This helps the organization to pick and choose the project at helps it achieve its strategic objectives. However, in today's dynamic environments where the technologies and the market conditions are quickly evolving, requires the management to quickly adapt to this change (Roeth, 2019, Martinsuo & Gerald, 2020). For instance, Nokia, which failed to respond to the changing market requirements and its delayed response caused its brand to decline. A lack of proper response in the correct time frame can cause a huge loss to an enterprise, especially in the Small and Medium Enterprises. As such enterprises are extremely focused on their revenue chain, they need to specifically align their portfolios to project that are beneficial to them along with being agile enough to actively respond to the ever-changing market requirement otherwise the results are disastrous. Agility is basically referred to the degree where management can adapt to align the project portfolio with critical success factors (Kester, 2014). This means how quickly the project management shifts from projects that are less effective to projects that are more effect for the benefit of the enterprise (Hansen & Svevig, 2022).

In addition to this, it may be noted that the adaptability of the organization also depends on the top management who are key players in organizational environment (Ahmed et al., 2021). Along with this the involvement of the top management/leaders of the organization also influences the portfolio performance (Mahmood et al., 2022). Senior management shapes how the organization will function. They are the strategic decision makers who decide the future direction for the organization. In previous studies, limited studies have focused on the link between dynamic capabilities and project portfolios. However, it's to be noted the dynamic capabilities of an organization may be shaped by the top management and in the context of Pakistan's SMEs where the organization structures are centralized the top management decides how the resources are allocated in the organization (Ahmed & Philbin, 2022; Ahmed et al., 2024).

With a few exceptions, there are limited studies linking project portfolio agility to its success (Teece et al., 2016; Kamhawi, 2012). In the SME industry, no research has looked at the linkages between Leadership capabilities, agility, and Portfolio success. In the previous research, we see project portfolio management is categorized as dynamic capabilities (Killen and Hunt, 2010; Gemünden & Kock, 2025) or it's seen that dynamic capabilities are studied only in qualitative or conceptual studies perspective (Killen, 2010). Mahmood et al. (2025) suggested that there is a gap to study the impact of dynamic capabilities on portfolio agility success. Therefore, research is needed to study the relationship between dynamic capabilities and project portfolio success with the mediating role of portfolio agility. In the future suggestion of their study a gap that was identified which was the role of different type leadership and how it will affect the relationship between the dynamic capabilities and project portfolio success. This is as the top management drives the organization and their decisions defines the resources allocation hence the type of leadership strategy used may play a role in relationship between the dynamic capabilities and project portfolio which may be positive or negative. This study aims to study the afore-mentioned gaps.

The main topic is dynamic capabilities, their impact on project portfolio success with the mediating role of portfolio agility yet it didn't discuss what role leadership capabilities play in shaping this relationship (Bechtel et al., 2023). Literature discusses relationship dynamic capabilities, innovation orientation and project portfolio success, but didn't

capture the full spectrum of dynamic capabilities regarding project portfolios (Pohl, E. A., Gemünden, H. G., & Hölzle, K., 2017). Focuses on micro foundations of dynamic capabilities on organization level however it doesn't explore the specific impact of dynamic capabilities on project portfolio success (Helfat, C. E., & Peteraf, M. A., 2015). Also, portfolio agility, which is to be considered an important factor to respond to the changing environment, there exists a gap in understanding the specific role of mediation between dynamic capabilities and portfolio success (Levine, 2005). This gap was researched by Bachtel et al. (2023) according to whose study dynamic capabilities have a positive relationship with portfolio agility. So, we aim to find out how the different leadership styles among the management impact this relationship. This factor may be considered important as the decisions of organization are associated with top management involvement (Staehr, 2010). This study aims to fulfil the above-identified gap through the following questions: a) What is the impact of Dynamic Capabilities on Project Portfolio Success? b) Does Project Portfolio Agility mediate the relation between Dynamic Capabilities and Project Portfolio Success? and c) Does Leadership Capabilities play a role in the mediation of Dynamic Capabilities and Project Portfolio Success?

## **Literature Review**

### **Underpinning Theory**

The theory used for this research is Resource-Based theory (RBT) which is a strategic framework focusing on resources and capabilities that helps an organization achieve a competitive advantage that is sustainable (i.e it has Value, Rarity, Imitability, and Organization: VIRO) over its competitors. RBT has been widely used to understand the sources of the firm's competitive advantage and performance. In our study, we will be using it to see how the dynamic capabilities with the role of agility and leadership help an organization achieve success in its project portfolio.

Teece et al. (1997) presented this idea in a landmark study that was released in 1997. Businesses need dynamic capabilities to innovate, adapt, and prosper in unpredictable and changing business environments. According to the author (Teece et al., 1997) defined dynamic capabilities as the firm's ability to integrate, build, and reconfigure internal and external capabilities to respond properly to the changing environment. This helps the firms to gain a competitive advantage which refers to an organization adapting its resource base to gain a sustainable advantage and can manipulate them if the need arises. That study defined dynamic capabilities in three dimensions: sensing, seizing, and reconfiguring:

### **Project Portfolio Agility (PPA)**

Dynamic capabilities act as the key drivers of agility. Their study suggested that dynamic capabilities help us to adapt project portfolios to response to external change. Agility as per Kester (2014) is the extent to which the portfolio management can adapt the portfolio and is considered a critical success factor. In the face of change an organization that will react appropriately is the one that will succeed, if it's seen that a change is occurring that affects the major projects under a portfolio only by taking right actions at the right time and implementing the correct plan of action will ensure the success of the portfolio (Afzal et al., 2023). If the action is correct but late or ineffective, then the organization will face a loss.

According to (Teece, 2016) it's like organizational agility and is described as how an organization effectively and efficiently redirects its resources to maximize value i.e. when change is identified, how the current resources are utilized to create value. According to author (Gemünden & Kock, 2025; Hsu et al., 2024) defined a behavioral construct for the top management to see how quickly they react to the changing market conditions. As it's not easy to implement change in an organization and most of the decisions depend on the

attitude of the top management. The results indicated that governance structures are required for maintaining agility in a large-scale project context, hence we can see that the top management of the leadership plays a significant role in this context (Ahmed & Mohamed, 2017; Shah et al., 2018).

Agility itself plays an important role in the success of any project. According to Martinsuo et al. (2007), the role of management a singular project in the achievement of project portfolio agility. Thus, proving the importance of agility to adapt the portfolio to be able to respond with the dynamic environment (Bhutto et al., 2025; Bukhari et al., 2025). Along with this it provides growth to newer options as there exists a link between agility and innovation, which was explored by Conboy and Morgan (2011) who highlighted that agile practices can foster innovation in project management through flexibility and collaboration

### **Project Portfolio Success (PPS)**

Project portfolio success as per (Cooper et al., 1999) was not only a measurement of individual project outcomes but how the portfolio contributes to the objectives of the organization. It is seen that the alignment of the strategies of the organization for the project portfolio success is necessary. According to the author (Martinsuo and Killen, 2014; Noor et al., 2025) delved into this relationship, which proved the importance of the project within the line of overall organizational strategy. The more synergy in these two factors the more success rate will be.

### **Leadership Capabilities (LC)**

For our study we have the leadership as the top management of our organization that manages the portfolio and defines the directions. According to Gemünden & Kock (2025), the involvement of the top management is necessary to define the strategy the organization will take. This as the top management will decide how the resources in the organization will be allocated (Easterby-Smith, 2009; Sarmad & Bashir, 2016). Therefore, the capabilities of the top management, the strategies of the organization will be defined. Risk-averse management will make conservative strategies and risk-accepting management will have lax policies. This will ultimately impact on the attitude of the employees of the organization.

### **Hypotheses**

H1: Dynamic capabilities positively affect project portfolio success.

H2: Project portfolio agility mediates the relation between dynamic capabilities and project portfolio success.

H3: Leadership capabilities mediate relationship between dynamic capabilities and project portfolio success.

### **Research Model**

The conceptual framework is based on dynamic capability theory lens comprising of factors sensing, seizing and configuring which were examined by Mahmood et al. (2025) as the independent variable have a positive impact on the project portfolio agility which acts as a mediating variable. As for dependent variables we have the portfolio success. In addition to this we aim to study the relationship between the top management capabilities and their effects on the relationship between dynamic capabilities and project portfolio success. For this we have Leadership Capabilities acting as a mediator between dynamic capabilities and project portfolio success.

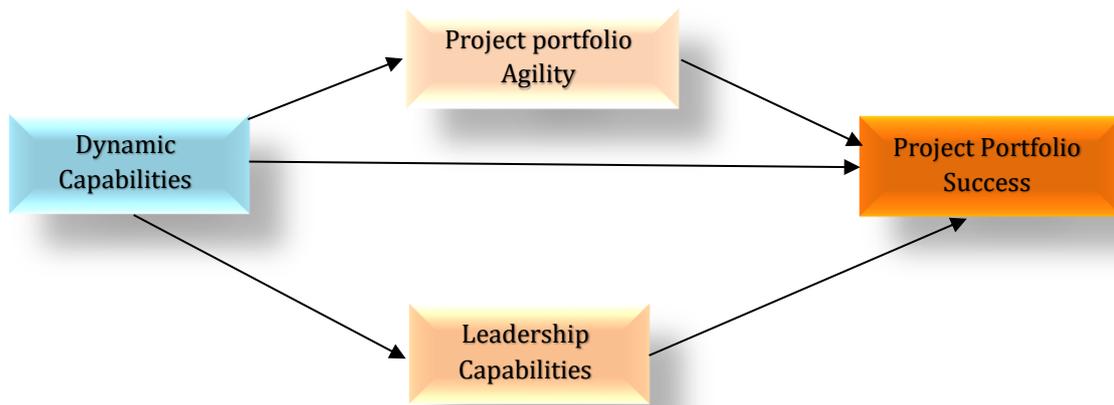


Figure 1 Theoretical Framework

## Material and Methods

### Research Design

A descriptive survey research design will be deemed appropriate for undertaking quantitative data collection, analysis, and integration research. The target population was a list of things, people, or items with similar qualities to those being studied. The study's target population was project portfolio managers in the SMEs sector of Pakistan. Because the study is a survey, it took the form of a census, with all the selected managers being interviewed. The structured questions will be used to collect a vast amount of information. The data will next be evaluated using descriptive statistics techniques such as regression and correlation. Additional statistical inferences at a 95% confidence level, Preacher's and Hayes analysis will be used to offer a generalization of the degree of connection between variables.

### Sample and respondents

The questionnaire was developed to collect data for the study and distributed to respondents who will be project portfolio managers from each of the selected SME firms across Pakistan using the drop-and-pick approach. Utilizing the quantitative methods, data was collected through convenience sampling (October to January 2024) that brought overall 422 respondents.

Due to geographical constraints, the data was collected in the region of Islamabad and Rawalpindi. The data was distributed among 560 portfolio and project managers, from which at least 422 responded, belonging to different levels of the organization hierarchy. For the study, the Snowball sampling technique is used. This is because we are less likely to get responses to email surveys, or even if they give a reply, it is incomplete or randomly filled out, which may impact our results.

### Instrument Selection

The data collection measures we have used in this study are based on previous research. The variables were measured on a five-point Likert scale, with many items being used to operationalize them in the study. On a five-point Likert scale, respondents will assess their agreement with claims regarding their company. All the constructs are measured using seven-point Likert-type scales anchored by "strongly disagree" (1) and "strongly agree" (5).

### Data Collection & Data Analysis

Participants' data is collected through a variety of ways, including email, an online survey platform, social media, and physical distribution methods. The questionnaire items data were shifted to SPSS and SmartPLS 4 to analyze the impact of independent variables on dependent variables. For the analysis of dependent and independent variables, regression and correlation performance will be used. To assess the hypotheses, a mediation analysis was performed using Preacher and Hayes' (2008) technique. The method of Preacher and Hayes is thought to be the most appropriate for evaluating mediation (Rungtusanatham et al., 2014).

## Results and Discussion

### Reliability Analysis

In table 4.1, the value of Cronbach's alpha reflects the internal consistency of the constructs. Dynamic Capabilities measured on 17 items, classified into three categories, showed the value of Cronbach's alpha 0.875, which demonstrates that the items of the construct are significantly consistent and reliable. Likewise, 9 items were used to measure Leadership Capabilities, and its Cronbach's alpha value 0.899, which is also significant. The 9 items of Project Portfolio Agility also showed strong reliability as its Cronbach's alpha value is 0.954. Project Portfolio Success has been measured with 11 items, and the output of Cronbach's alpha is 0.892, which is significant.

**Table 1**  
**Reliability Analysis**

Sr.	Constructs	Alpha	No. Of Items
1	Dynamic Capabilities	0.875	17
2	Leadership Capabilities	0.899	9
3	Project Portfolio Agility	0.954	9
4	Project Portfolio Success	0.892	11

Note: Alpha= Cronbach's Alpha

### Correlation

In Table 4.2, Pearson correlation shows the link between the continuous variables in this study. The correlation values always range from -1 to +1. The table mentioned illustrates the positive correlation between all constructs. The correlation between DC and LC is 0.715. Likewise, the values of correlation between LC and PPA are 0.498, between DC and PPS is 0.705 and between PPA and PPS is 0.586. The above-mentioned correlation values show that all constructs are positively correlated.

**Table 2**  
**Correlations**

Constructs	DC	LC	PPA	PPS
Dynamic Capabilities	1			
Leadership Capabilities	.715**	1		
Project Portfolio Agility	.487**	.498**	1	
Project Portfolio Success	.705**	.795**	.586**	1

Note: \*\*correlation 2-tailed

### PLS-SEM Approach

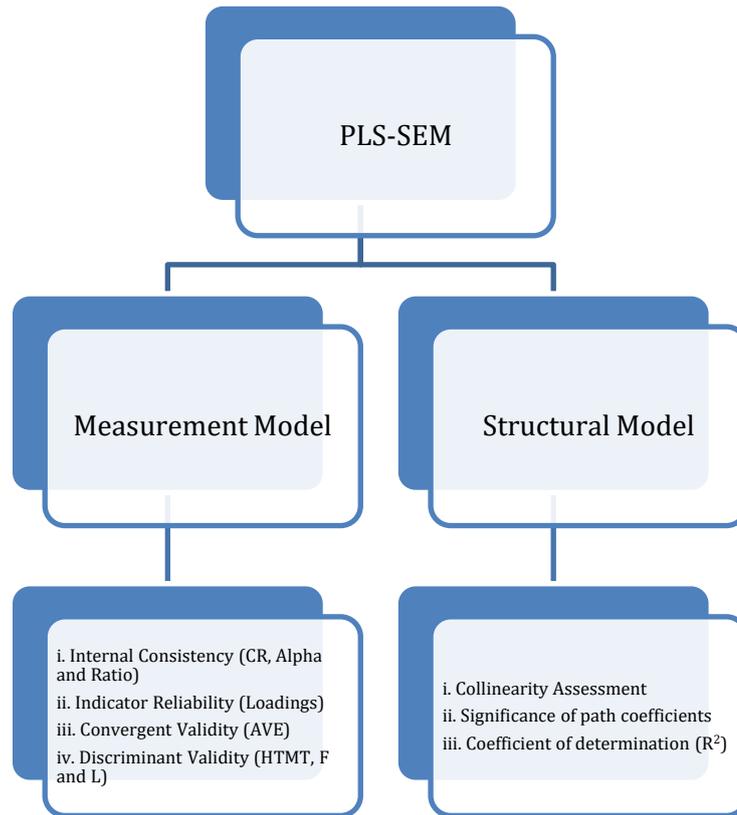


Figure 2 PLS-SEM Evaluation

**Table 3**  
**Convergent Validity**

Constructs	A	Pa	CR	AVE
Dynamic Capabilities	0.923	0.925	0.940	0.723
Leadership Capabilities	0.899	0.902	0.923	0.666
Project Portfolio Agility	0.892	0.895	0.925	0.756
Project Portfolio Success	0.901	0.937	0.931	0.774

Note:  $\alpha$ = Cronbach's alpha,  $\rho_A$ = rho\_A, CR= Composite reliability, AVE= Average Variance Extracted

**Table 4**  
**Discriminant Validity**

	CE	OA	SC	SE	SI
<b>DC</b>	<b>0.850</b>				
<b>LC</b>	0.802	<b>0.816</b>			
<b>PPA</b>	0.806	0.835	<b>0.816</b>		
<b>PPS</b>	0.505	0.583	0.467	<b>0.869</b>	<b>1</b>

**Paths Coefficient**

The evaluation of the structural model is PLS-SEM, involves the evaluation of the inner model, or hypothetical relations. In PLS-SEM, the structured model is assessed based on three main statistics, namely the path coefficient ( $\beta$  value) and bootstrap statistics (t value and p values). The focus is on the bootstrap procedure because it produces the relevant statistics to assess the statistical significance of the path coefficients. Broadly speaking, Hair et al. (2014) propose a bootstrap sampling of 5000 to estimate the statistical significance of path coefficients. Furthermore, the authors recommend evaluating critical path coefficients for a two-tailed test employing t-statistic estimates of significance level= 1% (2.57). The results of the structural model and hypothesis test are given in the following section.

**Table 5**  
**Hypothesis Testing for Direct Relationships**

Hypotheses	Relationships	B	t-statistics	P values	Results
H1	DC → PPS	0.008	2.447	0.007	Supported

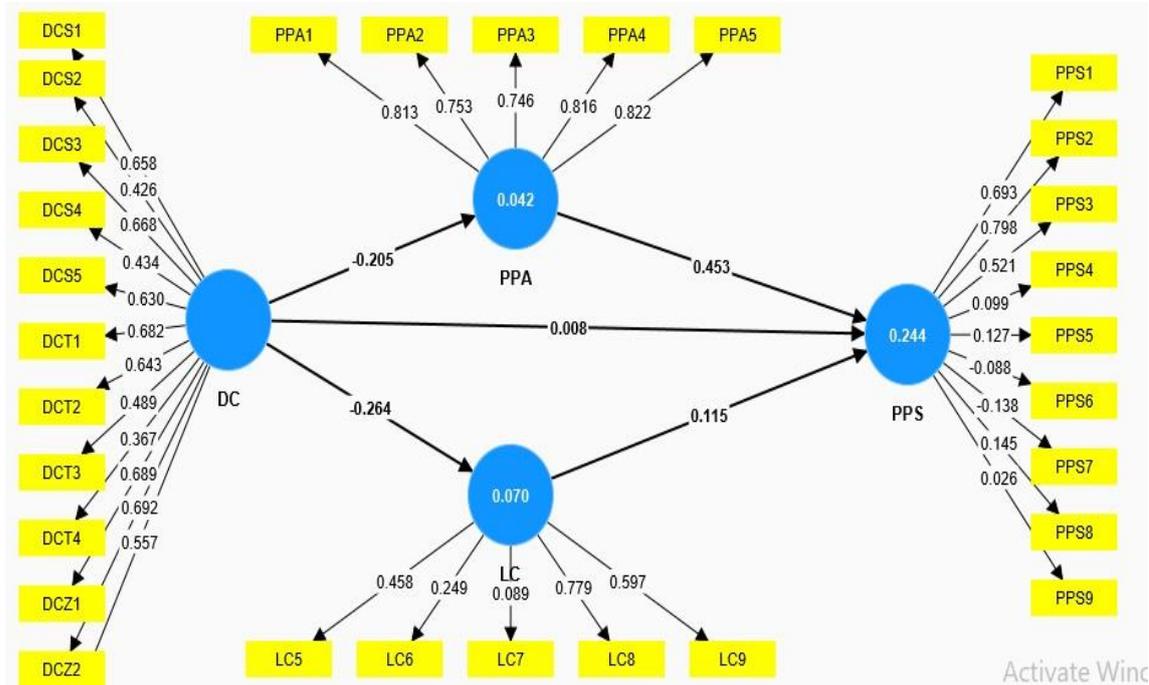


Figure 3 Structure Equation Modeling

The results in Table 4.12 indicate that direct hypotheses are accepted. The influence of Dynamic Capabilities on Project Portfolio Success was found to be significant ( $\beta=0.008$ ;  $t= 2.447$ ;  $p= 0.007$ ), supporting H1.

**Mediation Analysis (Andrew Hayes Process)**

The second and third hypotheses were tested through the mediation method where the number of bootstrap confidence intervals was maintained at 5000, while the confidence level for all confidence intervals was maintained at 95% (see Table 4.13 to 4.16). In hypothesis 2, the total effect of Dynamic capabilities (DC) on Project Portfolio Success is ( $\beta= 0.008$ ,  $t= 2.447$ ,  $\rho < .05$ ). This shows that dynamic capabilities will enhance project portfolio success in the SME sector and there is direct effect of DC on PPS. Finally, the indirect effect indicated that project portfolio agility mediates the relationship between dynamic capabilities and project portfolio success. The indirect effect  $\beta= 0.158$ ,  $t= 2.461$ ,  $\rho=0.007$ , shows that dynamic capabilities positively influence project portfolio agility which enhances project portfolio success of SME sector.

**Table 6**  
**Mediation (H2)**

<b>Mediation (Direct &amp; Indirect effects)</b>						
Mediator: Project Portfolio Agility	Effect ( $\beta$ )	SE	T	$\rho$	LLCI	ULCI
DC $\rightarrow$ PPS	0.008	0.137	2.447	0.007	0.095	0.551
DC $\rightarrow$ PPA $\rightarrow$ PPS	0.158	0.064	2.461	0.007	0.039	0.250

In hypothesis 3, the total effect of Dynamic Capabilities (DC) on project portfolio success is ( $\beta= 0.008$ ,  $t= 2.447$ ,  $\rho < .05$ ). This shows that dynamic capabilities will enhance project portfolio success in the SME sector, and there is direct effect of DC on PPS. Finally, the indirect effect indicated that leadership capabilities do not mediate the relationship between dynamic capabilities and project portfolio success. The indirect effect  $\beta= 0.139$ ,  $t= 1.291$ ,  $\rho=0.098$ , shows that dynamic capabilities positively influence leadership capabilities, but it does not enhance project portfolio success of the SME sector.

**Table 7**  
**Mediation (H3)**

<b>Mediation (Direct &amp; Indirect effects)</b>						
Mediator: Leadership Capabilities	Effect ( $\beta$ )	SE	T	P	LLCI	ULCI
DC $\rightarrow$ PPS	0.008	0.137	2.447	0.007	0.095	0.551
DC $\rightarrow$ LC $\rightarrow$ PPS	0.139	0.108	1.291	0.098	0.004	0.351

## Discussion

Within the framework of Pakistan's Small and Medium-sized Enterprises (SME) sector, this study explores the complex linkages between dynamic capabilities, portfolio success, portfolio agility, and leadership competencies. The goal of the study is to clarify the complicated relationship between portfolio performance and dynamic capabilities, with portfolio agility acting as a mediator, as well as the interactions between leadership and dynamic skills. An important factor in Pakistan's economic growth is the SME sector. Comprehending the elements that lead to portfolio success in this industry is essential for long-term expansion and competitiveness. Dynamic capabilities, which are defined as the capacity for innovation and adaptation, are seen to be essential for the success of a company. With an emphasis on the moderating influence of leadership talents and the mediating role of portfolio agility, this study investigates the relationship between dynamic capabilities and portfolio success.

The objective of the study was intended to explore the relationship between dynamic capabilities and project portfolio success in the SME sector of Pakistan. The hypothesis (H1) was supported by the results of the preceding chapter with the  $\beta= 0.008$ ,  $t= 2.447$  and  $\rho = 0.007$  with a good effect on project portfolio success.

The second hypothesis of the current study H2 is also accepted, the results show that Project Portfolio Agility positively but partially mediates between dynamic capabilities and project portfolio success ( $\beta= 0.158$ ,  $t= 2.461$ ,  $\rho=0.007$ , LLCI= 0.039, ULCI= 0.250). The third hypothesis of the current research paper H3 is not accepted. The result shows that leadership capabilities do not mediate the relationship between dynamic capabilities and project portfolio success ( $\beta= 0.139$ ,  $t= 1.291$ ,  $\rho=0.098$ , LLCI= 0.004, ULCI= 0.351).

## Implications

This research has theoretical contributions to academics and practical contributions to industry. The research outcomes in this study will support the upcoming researchers from academia and industries in different geographical economies. The concept also evolved to point out how dynamic capabilities help the firms to adapt and innovate over time. Plus, it can be applied to various industries as numerous empirical studies suggest thus it is in line with our current study. The relevance of dynamic capabilities—a company's capacity to modify, adapt, and reorganize its resources in anticipation of outside opportunities and threats—is emphasized by RBT. This flexibility is essential for sustained

success. Discussions on competitive edge, business performance, and strategic choice-making have been influenced by Resource-Based Theory, which has a significant impact on strategic management. It is still a useful foundation for comprehending the ways in which internal resources of a company might support long-term competitive success.

The researcher would also want to explain the practical significance of this research study. First, In the constant evolving field of business organization are constantly have to overcome complexities, risks and change in their environments. To sustain their success the integration of dynamic capabilities into their portfolio management should be considered necessary. This is as dynamic capabilities is basically an underlying process that helps an organization recognize its resource gap and adapt to fill that gap, ultimately creating a strategic change which may also provide a competitive advantage.

### **Conclusion**

This research assists portfolio managers by improving their agility and making themselves agile and in turn, may lead to economic growth. While this study contributes to various areas of literature, it has some significant flaws. It is strongly recommended that Leadership Capabilities be studied in technological and non-technological aspects. Future studies should look at the moderation impact of IT capabilities and should investigate other sectors (e.g. energy sector, manufacturing sector, hotels etc.) of Pakistan and in other countries. SME sector is also involved in the economic sector and plays a vital role in it. Future studies should determine that.

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