

MEDIATING ROLE OF PRODUCTIVITY BETWEEN PERFORMANCE EXPECTANCY AND ADAPTIVE PERFORMANCE OF MANAGERS IN SMES

ABID HUSSAIN¹, SANA RASHID², SARA SHABBIR³, RIZWAN QAISER DANISH⁴, MANZOOR AHMAD SHAH⁵

ABSTRACT

This study investigates the mediating role of productivity between performance expectancy and adaptive performance of managers through usage of mobile technology in the context of small and medium enterprises of Pakistan. This study's target population includes managers or owners of SMEs listed in Chambers of Commerce of Capital cities of Pakistan. As part of the more extensive research, 422 responses were received, which shows a 59% response. To test the hypotheses, measurement and structural model was developed in SEM. The findings showed that partial mediation was observed in the case of performance expectancy with adaptive performance as direct beta without mediation is significant and positive, as well as in the presence of mediator productivity, it is also positive and significant with reduced strength of relationship between performance expectancy and adaptive performance. This study's findings will help the academia, banking sector, SMEDA and practitioners understand the importance productivity increased with technology, performance expectancy and adaptive performance. Future researchers must focus on an empirical investigation of testing the effect of information quality, system quality and mobile banking to predict managers' adaptive performance by comparing SMEs and large enterprises in Pakistan.

Keywords: Mobile Devices, Performance expectancy, Usage, Productivity, Adaptive Performance.

JEL Codes: L86, P17

I. INTRODUCTION

This study investigates the performance expectancy and productivity via Mobile devices (android-based smartphone, PDA (Personal Digital Assistant), Samsung Galaxy, iPad, and Tab) in predicting the adaptive performance of managers in small and medium enterprises of Pakistan. In a recent study, Feroz et al. (2020) found a significant and positive association of mobile phone usage with community health workers' performance. They proposed the appropriate use of mobile phones in improving the performance of the staff of various organizational stratified levels. In 2019, a study also found such a significant and positive effect of mobile phone usage on the students' academic performance (Hossain et al., 2019). In their study, Adivar et al. (2019) found that effective use of technology and mobile had enhanced supply chain managers' performance. In a similar orientation, Kamboj and Gupta (2020) found that employees who used smartphone apps while performing services relating to hospitality improved their performance. Moreover, the study of Lebioda et al. (2019) also found evidence of a positive impact of mobile technology usage on the perceived performance of the workers. In experts' opinion, there would be a time when none of the human beings/us would be without a mobile phone due to mobile phones' helpfulness in our lives (Batool et al., 2019; Yusuf et al., 2020). According to the study of Júnior et al., (2020), Brazilian small and medium enterprises (SMEs) has been using technology for enhancing their performance by their knowledge management systems. According to Chau et al., (2020), mobile commerce (m-commerce) was perceived as very beneficial for small and medium enterprises (SMEs) of Vietnam due to perceived aspects of benefits, compatibility, security, organizational readiness, innovativeness, customer pressures, government support, and IT knowledge of the managers. At the end of the study, they recommended other scholars to validate their research in developing countries for making comparisons. However, such mobile use should be within the organizations' moral and ethical values, as discussed by Mehmood et al. (2020), to reap positive outcomes for the employees and the organizations. Small and Medium enterprises are known as the most important economic part of the business. In the context of SMEs, their performance determines their success. The strategies and planning

¹ PhD Scholar, Hailey College of Commerce, University of the Punjab, Pakistan

² PhD Scholar, Hailey College of Commerce, University of the Punjab, Pakistan

³ PhD Scholar, Hailey College of Commerce, University of the Punjab, Pakistan

⁴ Associate Professor, Institute of Business and Administration (IBA), University of the Punjab, Pakistan

⁵ Accounts Officer, SHC& ME Department of Punjab, Pakistan

show the achievements of an SME. The objective of a firm is achieved by the ability and implementation of a firm (Al Salman & Hassan, 2016; García-Sánchez et al., 2019; Harwiki & Malet, 2020; Ismail & King, 2014; Queiroz et al., 2020; Taouab & Issor, 2019). A firm that effectively and efficiently uses its resources is always profitable (Queiroz et al., 2020). In a dynamic environment, the capability of being adaptive is significant. SMEs reflect this capability by being flexible enough to create changes and achieve their objective (Blackford, 2003; Ensari & Karabay, 2014). Wang and Ahmed (2007) have found that flexibility would demand quick and fast practice and process changes. This capability helps SMEs to give evolving market opportunities. The evolution of mobile devices and mobile technologies enhances SMEs' performance (Harwiki & Malet, 2020; Wang et al., 2016). The objective of this study is an empirical investigation of the performance expectancy, productivity in predicting the adaptive performance of managers or owners in Small and Medium Enterprises (SMEs) of Pakistan. Managers or owners of small and medium enterprises face issues and obstacles of technological and managerial capabilities and skills to perform multiple tasks to achieve organizational goals (Sherazi et al., 2013; Dar et al., 2017). Many managers are still applying and implementing mobile technology's advanced possibilities and analyzing innovative business models (Siau et al., 2003). Therefore, this research aims to recognize the effect of the adaptive capability of managers of small and medium-sized businesses and their relative advantage of productivity in predicting adaptive performance in the context of Pakistan. The research questions that have been put forth to carry out this study in the light of the objectives are as follow: (1) To what extent performance expectancy is related with the adaptive performance of managers? (2) To what extent performance expectancy is related to adaptive performance through the mediation of productivity via mobile devices?

II. LITERATURE REVIEW II.I. PERFORMANCE EXPECTANCY (PE)

According to Venkatesh et al. (2003), performance expectancy is described as how optimistic and assured an individual employee is that the use of mobile devices technology can boost their task performance. Perceived utility, job-fit, extrinsic motivation, relative advantage, and outcome expectations were also included in the measurement (Venkatesh et al., 2003) and matched to the model proposed by Stieglitz and Brockmann (2012).If we look into the positive attitudes towards performance expectancy of the technology and technological devices, there are various perceived benefits of using technology and technological devices. Similarly, in a study Weeger, Wang, and Gewald (2016) argued that people used technology and technological devices due to their evident benefits rather than mere adoption or acceptance of the technology. According to Venkatesh et al. (2012), performance expectancy expresses the expanse of an individual's belief that use of technology would bring benefits to him/her while performing certain specific activities. They explained that performance expectancy consisted of four major components including intrinsic motivation, extrinsic motivation, job-fit, and the relative benefit. Intrinsic motivation is aroused through positive/favorable perceptions about the activities that need to be performed by that individual. Intrinsic motivation serves as instrumental base for the individuals and it is aroused through favorable perceptions about the rewards of the activities performed by that individual. According to Huang and Kao (2015), when an individual perceives that capabilities of new technology will enhance his/her job performance (job-fit) with lower costs, he/she experiences motivation to use the technology. In various studies regarding electronic and mobile banking, it was found that performance expectancy was perceived to be high which resulted in rapid technology adoption (Zhang, et al., 2018; Gupta et al., 2019; Sharma et al., 2019; Almaiah et al., 2020; Dayour et al., 2020). As a result, it can be inferred that there is a higher tendency of acceptance and use of technology when there is a higher performance expectancy, which means that the higher the degree to which a person expects and assumes that using technology can help him/her successfully complete job tasks/goals, the higher the tendency of acceptance and use of technology. Hence, the following hypothesis is proposed:

H1: Performance expectancy shows a positive impact on adaptive performance.

H2: Performance expectancy shows a positive impact on productivity.

II.II. PRODUCTIVITY

Productivity of manager is one of the most critical variables (Sobhani & Beheshti, 2010) enabling companies to succeed and workers to upswing. As a result, they are well-balanced to help productivity activities that go beyond text messages and voice calls. Reviewing and even editing documents, for example, has become more commonplace with the use of a mobile device, and the same is true for managing company E-mails (Tokuda et al., 2009). A rapid increase in the productivity of employees of those 75% organizations was observed who give flexibility to their employees (Kumar, 2012). Productivity is one of the most important factors (Sobhani & Beheshti, 2010) that allow organizations prosper and employees grow. New technological solutions provide executives with capabilities that help organizations increase productivity as long as the technology becomes a part of the business strategy. When managers do not believe in the organization's strategy and are not willing to invest in information systems (Devaraj & Kohli, 2000) employees will not be willing to use their personal smart mobile devices for work-related activities unless such practice would benefit them personally. The senior management must take a leading role to ensure all the executives work together towards the same goal and support investments in smart mobile devices and digital economy. Managers are expected to work as a team supporting standardized

smart mobile device use throughout the company versus concentrating on their own department's or functional benefits (Welch, 2005). Promoting smart mobile device usage for work related purposes and digital activity, especially among older employees (Crowcroft, Fu, & Li, 2014), might be a challenging task. Executives need to identify and manage people's reactions to change (Wang, 2005) if they want to maximize the employee productivity.

H3: Productivity mediates the relationship between performance expectancy and adaptive performance.

II.III. ADAPTIVE PERFORMANCE

Adaptive performance is all about analyzing and understanding changes in the workplace and making adjustments to effectively respond to those changes (Pulakos, Arad, Donovan, & Plamondon, 2000). It is important to note that one of the significant ways technology improves managers' adaptability skills is that it improves collaboration among different layers of management and front end. As a collaboration among the employees is improved, skills, knowledge, and capabilities are shared freely through effective communication across the SMEs (Pollack & Adler, 2016). By sharing knowledge, skills, and abilities through communication, managers do obtain not only first-hand market/competition insights but also ideas, feedbacks, opinions, and suggestions from employees from all layers of the management (Usman et al., 2018). This improves managers' decision-making process as they could adapt their performance and make creative decisions to handle challenges and tackle difficult situations (Pollack & Adler, 2016). Mobile and technological devices simplify or further automate routine tasks that traditionally consumed most of the managers' times. For example, instead of manually crafting daily reports, modern mobile technologies enable the managers of SMEs to manage the preparation and filing of daily reports instantly (Usman et al., 2018). Also, complex tasks of the management are being simplified using technology such as competitors' analysis, and market reports can be done instantly with the help of technology (Kitsios & Kamariotou, 2018). This simplification saves a lot of managers' time, and this time can be used for more creative thinking and decisionmaking. As a result, the managers' creativity and innovation are enhanced, and they become more flexible in handling multiple scenarios improving their adaptability skills (Kitsios & Kamariotou, 2018). One of the significant benefits of technology, such as mobile applications is that they enable SMEs to manage their time effectively. Through mobile technologies and applications, managers can track their time on different activities and analyze their time consumption. Using such analyses, they can set their priorities by allocating most of the time to the most productive activities (Forth & Bryson, 2019). As managers manage their time effectively, they will sense and identify ways to further improve their time management by adapting their performance (M'zungu, Merrilees, & Miller, 2019). Also, they are more creative and find innovative ways to do a task effectively in a new way to save time further and enhance efficiency. So, by educating and tracking time through technology, the managers' adaptability skills are improved (Correa et al., 2018).

II.IV. RESEARCH METHODOLOGY

The objective of this non-experimental predictive study is to examine the perceptions of business managers regarding the impact of performance expectancy, productivity via smartphone in predicting adaptive performance. The use of quantitative surveys aimed at small and medium-sized enterprises situated in Pakistan's capital cities has been distributed. The target audience was the business professionals with the job title of manager or director. If managers or directors can identify perceptions of the acceptance, usage of mobile devices to increase productivity in small and medium-sized enterprises (SMEs) can resolve deficiencies and make more efficient use of mobile devices to improve performance. As part of the more extensive study, 422 responses were received, and the response rate is 50%. The method of research for this thesis is covariance-based structural equation modeling (SEM). A study sample of at least 200 cases is usually considered and appropriate for SEM (Hair, Black, Babin, & Anderson, 2010; Kline, 2011). Hair et al. (2010) have explained that adopting a broad sample size, like at least 200 cases, increases SEM results. To test the hypotheses, measurement and structural models were developed in SEM. The scale of performance expectancy (PE) consisting of 7 items was adopted from the study of Yueh et al. (2015), The mediating variable productivity (PROD) having 4 items was adapted from the study of Tarafdar et al. (2007). The last dependent variable Adaptive performance scale consisting 8 items was adopted from the study of Linda et al., (2013). Responses have been computed by a 5-point-Likert Scale as anchored by 1 (strongly disagree) following 5 (strongly agreed). The area cluster sampling technique have been used to draw the sample size for the study.

III. RESULTS AND ANALYSIS

In this research study, data about gender, age, marital status, establishment composition, job tenure was calculated through SPSS. Four hundred twenty-two responses were received, in which 332 male respondents and 90 female respondents. 2.6% respondents age are less than 20 years, 36.3% of respondents age are between the range of 21 to 30 years, 37.9% of respondents' ages are between the range of 31 to 40 years which shows highly response rate in this range of age, 17.8% of respondents age are between the range of 41 to 50 years, 4.5% of respondents age are between the range of 51 to 60 years and 0.9% of respondents age are more than 60 years which shows least response rate. 69.2 % of respondents are married and 30.8% of respondents are unmarried.

Table 1: Demography of the study

Characteristics	Classification	Frequency	Percentage
Gender	Male	332	78.7
	Female	90	21.3
	Total	422	100.0
Age	Less than 20	11	2.6
C	21 To 30	153	36.3
	31 To 40	160	37.9
	41 To 50	75	17.8
	51 To 60	19	4.5
	More than 60	4	0.9
	Total	422	100.0
Marital Status	Married	292	69.2
	Unmarried	130	30.8
	Total	422	100.0
Establishment Composition	Trading	137	32.5
-	Manufacturing	79	18.7
	Services	206	48.8
	Total	422	100.0
Job Tenure	Less than 1 year	15	3.6
	1 To 2	51	12.1
	3 To 4	59	14.0
	5 To 6	56	13.3
	7 To 10	91	21.6
	More than 10	150	35.5
	Total	422	100.0

Table	2.	Data	Mean	SD	Skewness.	Kurtosis
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Items	Mean	Std. Deviation	Skewness	Kurtosis
PE1	4.0047	1.13254	-1.567	1.873
PE2	4.1422	0.85459	-1.126	1.324
PE3	4.1564	0.87412	-1.274	2.094
PE4	4.0166	0.9611	-1.243	1.516
PE5	4.0592	0.95445	-1.189	1.402
PROD1	3.955	1.05676	-1.075	0.706
PROD2	3.9668	0.83785	-0.863	0.743
PROD3	3.7678	0.98352	-0.83	0.381
PROD4	3.9573	0.9979	-0.966	0.591
AP1	4.019	1.00338	-1.456	2.089
AP2	4.1185	0.84144	-1.164	1.691
AP3	3.9739	0.85076	-0.997	1.398
AP4	3.9621	0.88185	-1.158	1.754
AP5	3.9384	0.94555	-1.062	1.068
AP6	4.0308	0.96814	-1.245	1.54
AP7	4.019	0.88246	-1.058	1.279

There are three categories of establishment composition: Trading, Manufacturing and Services. 32.5% of respondents belong to trading sector, 18.7% of respondents belong to manufacturing sector and 48.8 % of respondents belong to services sector which shows highly response rate. 3.6% of respondent's job tenure is less than 1 year, 12.1% of respondent's job tenure is between the 1 to 2 years, and 14% of respondent's job experience is between the 3 to 4 years, 13.3% of respondent's job tenure is between 5 to 6 years, 21.6% of respondents job tenure is between 7 to 10 years, 35.5% of respondents job tenure is more than 10 years which shows highly response rate in the job tenure categories.

The table above shows the normal distribution of the data collected. In 1979, Bulmer defined a thumb rule: the projected skewness value must be between +1 and-1, and Balandam and Mac Gillivray (1988) initiated that the

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estimated kurtosis value should be between +3 and-3 forecasts. Complete elements usually have been approved as the estimated skewness value is in the middle of +1 and-1, but some are slightly inflated. The estimated kurtosis values are within +3 and-3, which, in relation, indicate the data is usually distributed, and we can say that normality is fulfilled and has the capacity for more analysis.

Table	3:	Correlation	Analysis
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	Tuble 3: Correlation finally sig						
It	ems	PE	PROD	ADP			
	PE	1					
Pl	ROD	0.613***	1				
A	ADP	0.686***	0.845***	1			

^{***.} Correlation is significant at the 0.001 level (2-tailed).

The correlation analysis shows the association between the constructs. Table 3 shows Pearson's (r = 0.613) performance expectancy and productivity, which shows a significant and positive relationship. The performance expectancy is correlated with adaptive performance (r = 0.686) and exhibits a positive and meaningful relationship. Productivity is associated with adaptive performance (r = 0.845) showing a positive significant relationship at 0.001 level.

Table 4: Confirmatory factor analysis

Construct	Item	Loading	$\mathbf{C.R}$	Cronbach alpha
Performance Expectancy	PE1	0.73	0.78	0.77
	PE2	0.79		
	PE3	0.65		
	PE4	0.52		
	PE5	0.50		
Productivity	PROD1	0.74	0.81	0.80
	PROD2	0.75		
	PROD3	0.72		
	PROD4	0.65		
Adaptive Performance	AP1	0.77	0.85	0.84
•	AP2	0.73		
	AP3	0.70		
	AP4	0.66		
	AP5	0.66		
	AP6	0.57		
	AP7	0.53		

The Confirmatory factor analysis table shows the values of the factor loading, composite reliability, and Cronbach's alpha. Most of the values of factor loading are above the 0.50 threshold so the measure is assumed to be adequate. Composite reliability for all constructs are also above the threshold 0.7 which means that convergent validity was present and scales met the criteria of validity. Cronbach alpha for performance expectancy is 0.77, productivity is 0.80, and adaptive performance is 0.84. Cronbach's alpha's thumb rule is 0.7 and above is considered acceptable, 0.8 and more significant is considered better, and 0.9 and above is considered the best.

Table 5: Discriminant Validity HTMT Analysis

	PE	PROD	ADP
PE			
PROD	0.584		
ADP	0.659	0.848	

III.I. DISCRIMINANT VALIDITY

Table 5 shows the discriminant validity by comparing the bivariate correlation among the variables. All the above mentioned values in diagonal form are the square root of the AVE (Hair et al., 2010) and these values were exceeded the vertical and horizontal bivariate correlation of the each construct which met the minimum criteria and it was assumed that discriminant validity is confirmed in Table 5.

III.II. TEST OF MULTICOLLINEARITY

As a general guideline, if the Value of VIF is less than five, then there is no multicollinearity problem. If the VIF value ranges from 5 to 10, there is a moderate multicollinearity problem, and if the VIF value is equal or greater than 10, there is a serious multicollinearity problem. Multicollinearity test was carried, and all VIF values in Table 5 were found to be less than five and did result in no multicollinearity.

TABLE 6: Collinearity Statistics

Variables	Tolerance	VIF
Performance Expectancy	0.710	1.408
Productivity	0.710	1.408

III.III. STRUCTURAL EQUATION MODEL

The Structural Equation Model (SEM) is often a procedure for computing or analyzing relationships through depicted information plus specific assumptions (abstract hypotheses). SEM is extremely applicable to both primary and confirmatory models. The SEM has been used to form inferential factors; these factors are not primarily examined and are therefore generally derived more closely from various factors. SEM technique involves regression, path assessment and factor assessment. In other words, SEM is an amalgamation of both factor analysis (CFA) and multi-regression analysis. AMOS 26 has been used in the present study to assess the measurement or test of the model. SEM is used to identify anomalies, changes, correlations, dependence and independence between the variables under observation and dialogue.

III.IV. CONFIRMATORY FACTOR ANALYSIS (CFA)

Confirmatory Factor Analysis (CFA) is a type of structural equation model that is probably understood in the same way as the evaluation model. With the help of Amos 26, the figure was independently ready for individual factors. Precisely once the CFA is made, the next step is to create a model of great wellness/fitness. There are a few kinds of health model splitting. The CFI must range from 0 to 1, showing the fitness of the model. Besides, if the CFI value is 0.90 or greater, it is limited (Hu & Bentler, 1999). However, according to Hu & Bentler (1999), the assessment of RMSEA will be below 0.08, which further shows some fitness of the model. If the value of RMSEA is less than 0.06, the model is appropriate (Hu & Bentler, 1999). If GFI and AGFI are greater than 0.90, it is highly valued for model fitness. The overall measurement model is intended to test the questionnaire's validity and accuracy, as shown in Figure 2. Table 6, which demonstrates the convergent validity of all items. Convergent validity has expected that two variables are correlated to each other to assess the same design. In our analysis, we evaluate the fitness of the overall model. Table 6 shows that CMIN / DF is 2.419, RMR is 0.053, GFI is 0.886, AGFI is 0.859, CFI is 0.903 and RMSEA is 0.058. All values shall meet the threshold values and the adequate standard.

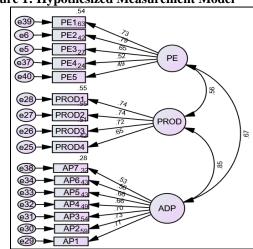


Figure 1: Hypothesized Measurement Model

III.VI. HYPOTHESIS TESTING III.VI.I. DIRECT EFFECT

After evaluating the model's fit, AMOS develops a structural model to determine the relationship between the variables. Table 8 shows the direct impact of performance expectancy on adaptive performance. Performance expectancy has a positive and significant effect on adaptive performance (β =0.63, p<0.05), and performance

expectancy has also a positive and significant direct impact on productivity (β =0.53, p<0.05), and productivity has a direct and positive significant impact on adaptive performance (β =0.69, p<0.01), so H1 and H2 have been accepted.

TABLE 7: Fitness Summary

Model	Hypothesized	Thresholds
CMIN/DF	2.419	< 3; < 5
RMR	0.053	Closer to 0
GFI	0.886	\geq 0.9, 0.85
AGFI	0.859	≥ 0.8
CFI	0.903	≥ 0.9
RMSEA	0.058	≤ 0.08

III.V. STRUCTURAL MODEL

Figure 2: Hypothesized Structural Model

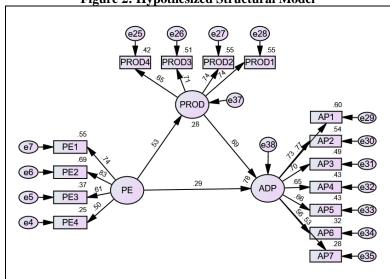


Table 8: Direct Effect

Direct paths	Standardized Estimates	p-value
Performance Expectancy> Adaptive Performance	0.63	0.05
Performance Expectancy> Productivity	0.53	0.05
Productivity> Adaptive Performance	0.69	0.01

Note. ***p-value <0.001, **p-value <0.01, *p-value <0.05

III.VI. ANALYSIS OF MEDIATION

The mediation analysis is performed in SEM to determine the mediation effect. The summary of the mediation analysis is shown in Table 8. Partial mediation is observed in the case of performance expectancy and adaptive performance as standardized direct beta without mediation is significant and positive, as well as in the presence of mediator (productivity) performance expectancy and adaptive performance is positive and significant (β =0.29, p<0.01), and standardized indirect beta is also significant and positive (β =0.37, p<0.01) thus hypothesis 3 is accepted.

Table 9: Influence of mediation

Variables	Direct beta without Mediation	Direct beta with mediation	Indirect beta	Mediation type observed
PE> PROD> ADP	0.63 0.05 p-value	0.29 0.01 p-value	0.37 0.01 p-value	Partial mediation

Note. ***p-value <0.001, **p-value<0.01, *p-value<0.05

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IV. CONTRIBUTIONS, RECOMMENDATIONS, CONCLUSION

The current study has theoretically contributed to the existing literature on the performance expectancy and Adaptive performance of managers in small and medium-sized enterprises in Pakistan for several reasons. First, on the basis of the theory of UTAUT, findings of current study show the relationship between performance expectancy and adaptive performance. In this way, current study contributes to broadening the concept of UTAUT and suggests that adaptive performance of managers can be enhanced through performance expectancy. Second, although the usage of mobile device is considered as a requisite of pro-adaptive behavior, yet to best of our knowledge, no efforts have been made to studying the mediating effect of productivity via mobile devices in the relationship between performance expectancy and adaptive performance. Thus, this study contributes by developing linkage of performance expectancy to adaptive performance through mediation of mangers' productivity via mobile device in the context of small and medium enterprises. This is consistent with the recommendations of Venkatesh et al. (2003) in new contexts. Finally, In light of Chau et al. (2020) recommendations, the current study has led the conversation towards the positive effects of adopting mobile technology in enhancing the advantage of mobile banking of SME managers in Pakistan. The current study also provides relevant managerial implications for Apps developers, SMEDA and SMEs sectors. First, the results of this study show that SMEDA should provide trainings to small business initiators and mangers on innovative mobile technology and in this way they can adapt their performance through productivity via mobile technology. Future researchers must focus on the empirical investigation of the testing effect of information quality, system quality, service quality and mobile device usage on the mobile banking and adaptive performance of managers by comparing SMEs and large enterprises in Pakistan. This study was designed to test an empirical investigation of mediating role of productivity via mobile technology in predicting relationship between performance expectancy and adaptive performance of managers in small and medium enterprises of Pakistan. The data was collected from the clusters of Pakistan's capital cities, and SEM was used to test the hypotheses. All three hypotheses are validated and supported by the results of the SEM analysis. The findings of this study show that (1) performance expectancy shows a significant and positive impact on the adaptive performance of managers through partial mediation of productivity via mobile technology in small and medium enterprises of Pakistan; and (2) the findings of this study will also help the academia, SMEs sector, SMEDA and practitioners to understand the importance of mobile technology and the impact of performance expectancy, productivity via mobile devices in predicting adaptive performance.

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