



Survival of Small and Medium Enterprises (SMEs) through Innovation Practices and Technological Innovation during COVID-19: Evidence from Pakistan

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Abstract

The purpose of this study is to investigate and clarify how Innovation Practices (IP) and Technological Innovation (TI) affect small and medium-sized enterprises (SMEs)' ability to External Support (ES) in the COVID19 period. This research aims to investigate how External Support (ES) mediates the relationship between Technological Innovation (TI), Innovation Practices (IP), and the survival of small and medium-sized enterprises (SMEs), as well as how ES mediates the interaction between IP and TI. This study took a quantitative and deductive approach. The researcher gathered information from three SMEs in Gujranwala using an electronic questionnaire. SPSS software is used to analyse the data. In this study, two independent variables (IP and TI) each impact the SMEs, which leads to the ES. The replies of 250 consumers were used as a sample for this investigation. The judgmental sampling technique is employed in this study to obtain data from knowledgeable people about the subject under investigation. According to this study, both factors (IP and TI) have a substantial relationship with SMEs. Results show that the ES mediates the link between IP and SMEs as well as the association between IP and TI. This research will add to the existing knowledge about SMEs' survivability amid the COVID crisis. This is one of the first studies to look at external support as a mediator between IP and TI and the impact of IP on SSMEs in the COVID context. This study gives managers a thorough picture of the aspects that firms believe are vital in implementing effective Innovation Practices and Technological Innovation to improve their chances of business survival. As a result, this research aids managers in developing product manufacturing plans.

Keywords: COVID-19, Innovative practices, SME Performance, Small and Medium-sized Enterprises, SME Survival



Introduction

The Covid-19 epidemic in Pakistan ignited a lingering issue, particularly in the business community. This unexpected global epidemic has had a significant impact on the service industry. The Covid-19 pandemic in Pakistan sparked a lingering issue that was particularly harmful to the business sector. The unanticipated worldwide pandemic significantly harms the service industry (Akerib et al., 2020) The COVID19 has more seriously impacted small and medium-sized businesses (SMEs), as well as a number of sectors, including retail, lodging, culinary services, transportation and security, and industrial areas. The COVID-19 outbreak has had an effect on all other aspects of the economy, including enterprises, organisations, and other economic sectors (Hasanat et al., 2020). Supply Chain Disruption has enabled SMES to overcome labor shortage, shortage of manufacturing inputs, and effecting sales (Pramesti et al., 2021). Innovation Technology has enabled the SMEs to meet the financial obligations as well (James &Kengatharan, 2020). Solution to these problem with an increase in cooperate expenditure (Robert et al., 2020). With might not be bearable for small firms (Ozili, 2020). Five fundamental hypotheses about the correlation between these variables are the foundation of the theoretical model that is put forth in the present study. This study's goal is to reinforce the connection between the COVID-19 epidemic crisis's effects on SMEs by examining the moderating effect of outside assistance given during the crisis. The primary findings of the study suggest that SMEs' ability to survive depends on both technical and innovation in innovation methods. The study's results confirmed the importance of the outside support given to SMEs during the COVID-19 epidemic catastrophe and its moderating effect. Additionally, the results confirmed the Businesses' resilience (Rodriguez-Morales et al., 2020). Financial institutions and local and foreign NGOs assisted medium-sized businesses during the COVID-19 crisis (Liu et al., 2020). Business owners of SMEs have turned to a variety of coping mechanisms and strategies in the aftermath of the financial crisis. The authors are of the opinion that the responses and behaviours of SMEs will be centred on expense reduction(Thorgren& Williams, 2020), disaster management (Eggers, 2020), and the exploitation of digital technology (Adam &Alarifi, 2021). Previous studies investigating the relationship between SMEs' COVID-19 pandemic response strategies and their commercial success examined how each activity individually affected the businesses' total performance (Adam &Alarifi, 2021). For instance, Luo found in 2020 that digital technology aids small and medium-sized enterprises (SMEs) in surviving and



dealing with the pandemic's impacts. Similar to this, Thompson et al. (2021) claimed that small and medium-sized businesses can overcome the COVID-19 dilemma with the help of strategic agility.

The research results given here adopt a managerial perspective on the crisis-response strategies used by SMEs. On the other hand, very little study has been done to examine SMEs' recovery plans following the COVID-19 pandemic (Nepogodiev et al., 2020). Following the COVID-19 crisis, small and medium-sized businesses (SMEs) employed a variety of financial and marketing tactics to stay afloat. During the COVID-19 epidemic, the Pakistani government supported SMEs, particularly small and medium-sized businesses. At the local level, the government assists SMEs with marketing innovations, such as leveraging digital marketing and improving product and packaging quality, as well as technological innovation, such as challenging organizational learning capabilities, changing the relative importance of resources, and altering the competitive landscape. The government also has a tax-cut program that encourages and eases loans for small businesses. During a pandemic, the government encourages consumers and large enterprises to acquire SMEs' products at the national level, increasing demand for SME items. Furthermore, the government assists SMEs in adapting more swiftly to "new normal" behaviours by innovating customer service operations. Any crisis is an occurrence that is unusual and unpredictable. Because COVID19 is an ongoing problem for which there is no solution, it has led to significant shifts, which in turn has created significant challenges for the existence of the organization. As a consequence of this, more focus needs to be placed on the ways in which corporations and businesses respond to these challenges by using new technologies and creative concepts. To overcome the crisis and endure over the long term, businesses must innovate, which Ratten defines as "putting ingenuity to difficulties to get opportunities." Innovation is difficult because it is difficult for small and medium companies, in particular, to put innovative ideas into practise.

Limited or insufficient financial capital limited managerial experience or qualification, and limited technological information and know-how are their key impediments to Innovation (Raposo et al., 2014). Bankruptcy is possible when an economic downturn occurs and the turnover rate falls. Because new product innovation is expensive, reducing turnover also adds to innovative drop-in activity. Governments worldwide have recommended their citizens stay at home and adopt social distancing due to the COVID-19 pandemic, which has resulted in a shift



in customer preferences, which businesses must adapt to remain lucrative and competitive (Gustavsson & Larsson, 2020). Many businesses rely on technological breakthroughs, whether self-started or begun by others—2001 edition of the International Encyclopedia of Social and Behavioral Sciences. The pandemic caused by the coronavirus has resulted in an economic catastrophe, which in turn has required solutions on a global scale that have never been seen before. Due to the fact that every crisis is unique, businesses are unable to prepare for them by learning how to handle them in advance. As a consequence, businesses approach crises with little competence (Grewal & Tansuhaj, 2001).

The study's practical significance is that it aids in the development of an integration to innovate products and services for your customers. This study's management implications include producing major benefits for domestic and foreign companies by managing and encouraging innovation and technical practices in your company's development process. Furthermore, this research gives essential instructions for encouraging a good attitude toward innovation and technology processes. The primary focus of this research is on businesses that provide services during the Covid-19 pandemic. However, its breadth is particularly relevant to Pakistan's small and medium businesses, as it has a significant impact on them due to their direct contact with the public. Pakistan's SMEs account for the majority of the country's GDP. The sector is also the main source of employment. According to a survey, SMEs account for over 90% of all businesses in Pakistan.

Literature Review and Theoretical framework

This chapter includes definitional literature on innovation practices (organization structure, leadership and regeneration), technological innovation, the role of external support and the survival of SMEs. Then, explain the theoretical framework and relational literature of all variables. Based on the relational review, the hypothesis has been formed to check their relationship. The ultimate goal of any organization is to adapt to the changes in the outside world. As Covid-19 spreads over the globe, it poses a threat to both humans and small and medium-sized businesses. (It's either service or no service.) As a result, SMEs require an innovative system and technology to respond to workplace changes. This study focuses on resolving issues in a crisis, such as the one that occurred during Covid-19. COVID-19 focuses on generating effective ideas and purpose solutions to address the difficulties encountered by SMEs through innovative approaches and technical innovation. In a world characterised by



competitiveness, improving business practices, technological progress, and periodic crises, innovation has become increasingly important for all modern enterprises to flourish. The ability of a corporation to improve its operations is referred to as "innovation." In this research, we define "innovation practises" as the successful application of novel solutions to SMEs' problems, such as fresh ideas for goods, services, or production processes, fresh approaches to marketing, or novel working procedures that boost productivity (Adam & Alarifi, 2021). If "technical innovation" is considered, the term "innovation" can be understood in a wider way. Although the meaning of the word "innovation" is clear, many people, especially those in the business and academic sectors, have very different ideas about what it really means. The growth of contemporary industrial economies is increasingly dependent on the creation of new technologies.

As a direct consequence of this, governments place a larger priority on scientific investigation and technological advancement than they do on the policy governing science and technology. SMEs, also known as small and medium-sized businesses, are companies that do not exceed a specified threshold in terms of their revenues, assets, or personnel count. A SME is a legally recognised company with annual sales ten to one thousand times greater than the average gross national product (GNP) of the country. This figure is expressed in US dollars (Yarovoy et al., 2008). The term "external support" refers to assistance from someone not affiliated with the company. Organizations require external assistance to support something accurately means carrying the weight of, especially from below; keep from falling, sinking, bearing or holding up (a certain amount of weight), keeping from weakening or failing, etc. In this study, "enterprise survival" was used to describe how long it takes an organisation to complete all of its duties. The duration of an organization's "enterprise survival"—the time it takes to accomplish all of its tasks—was the subject of this study (Bercovitz & Mitchell, 2007). Along with the company's leadership, the stability of the business benefits many other people in the neighbourhood. Customers, vendors, and employees are some of them (Bercovitz & Mitchell, 2007). According to researchers, enterprise survivability is a trait of its performance (Nwachukwu & Oseghale, 2010). An organization's ability to survive depends on its ability to adapt to the conditions and environment in which it operates (Nwachukwu & Oseghale, 2010). When circumstances are difficult, the ability of small enterprises to continue operating is put in jeopardy. For example, SMEs have limited funding options as a result of the poor performance of the capital markets,



the absence of adequate information, and the systemic inefficiencies that exist across the economy (Dhochak& Sharma, 2015). Several studies have pointed to a connection between innovative organizational practices and continued existence over the long term. The capacity for innovation is essential to the continued operation of any business. According to recent studies, innovation is essential to a company's longevity and long-term success because it fosters growth and flourishing. According to a previous research, it makes sense to use innovations to get around the constraints and hurdles that industrial SMEs face in order to grow and survive(Adam &Alarifi, 2021).

H1: SME innovation practices have a significant impact on their survival.

Relationship between technological Innovation and SMEs survival:

Technology was also mentioned as a means to conduct business innovation. Ramayah discovered in 2005 that a SME's sustainability is built on a critical criterion for long-term business survival: maintaining consistent relevancy and business competitiveness regardless of the sector's origin. In this research, the term "enterprise survival" was used to describe the period of time it takes for an enterprise to operate from inception to closure. In addition to the enterprise's managers, many members of the community gain from the enterprise's survival. They include personnel, clients, and vendors. Researchers claim that a company's endurance is one aspect of success(Nwachukwu &Oseghale, 2010). There is a link between business innovation and long-term survival, according to numerous studies. Innovation is essential to the survival of any business (Ortiz-Villajos&Sotoca, 2018). A company's ability to innovate determines its longevity and long-term success because innovation promotes the company's growth and thriving as well as its future success, according to Mahle et al. (2002). According to previous research (Adam &Alarifi, 2021; Schumpeter, 1942), industrial SMEs may be able to flourish and survive if they use innovations to overcome the difficulties and problems they encounter. The survival of the business is closely related to its innovation practises.

H2: Technological Innovation has a significant impact on its survival

Relationship between SMEs and external support:

Studies indicate that, in a company, third-party assistance act as an external support (Alkire& Jahan, 2018). Assistance from outside sources is becoming increasingly popular among small and medium-sized businesses (SMEs) due to the fact that it provides these companies with essential knowledge and experience that enables them to improve their market standing and the



likelihood of their future success(Adam &Alarifi, 2021). In order to help SMEs thrive, grow, develop, and improve their capacities so they can make a greater impact on the national economy, numerous organisations, governments, and advocates offer them external support (Kolvereid& Isaksen, 2020) On the other hand, governments encourage small and medium-sized businesses (also known as SMEs) to seek assistance from outside sources so that these companies can more fully realise their business potential, improve their performance, boost their competitiveness, and support expansion and growth(Hayter, 2011).Specific government regulations or requirements enforced by financial intermediaries frequently provide it (Bodas-Freitas &Corrocher, 2019). Despite the importance and variety of external support for SMBs, research has shown that they get little value from it because management is unable to choose the best assistance, lacks knowledge of it, and is unaware of it(Story et al., 1994). Small businesses benefit from outside help because it provides them with the knowledge they need to develop and execute innovative ideas. Innovation frequently requires the use of business knowledge from the environment surrounding the enterprise(Woodman et al., 1993), Businesses innovate by fusing existing internal knowledge with information acquired from their external environment(Cohen & Levinthal, 1990). In 1991, Damanpour found a connection between an organization's capacity for innovation and its access to outside funding. In addition to providing human and financial resources, outside aid can help a business foster internal innovation(Rank et al., 2004).

H3: SMEs have a significant impact on external support.

Innovation practices mediate the relationship between SMEs' survival and external support.

Despite the differing opinions on 'innovativeness,' scholars have begun to re-examine innovation's success and failure (Md Saad &Mazzarol, 2010). Despite the fact that the subject has been studied since 1982, life is the focus of many studies. Searching for successful invention and its determinants from 2002 to the present(Md Saad &Mazzarol, 2010), towards a more complete image that takes firm survival into account(Rahman et al., 2016), and customer loyalty and satisfaction (Rahman et al., 2016). As a consequence, innovation techniques act as a mediator in the relationship between the survival of SMEs and outside assistance. Innovation is the process of changing an organization's procedures in order to enhance success (Curristine, 2006). In this research, success is described as achieving other strategic goals in addition to market share, institution sales, profitability, and competition(Hurley et al., 2005).



H4: Technological Innovation mediates the relationship between SMEs' survival and external support.

Technological innovation mediates the relationship between SMEs' survival and external support.

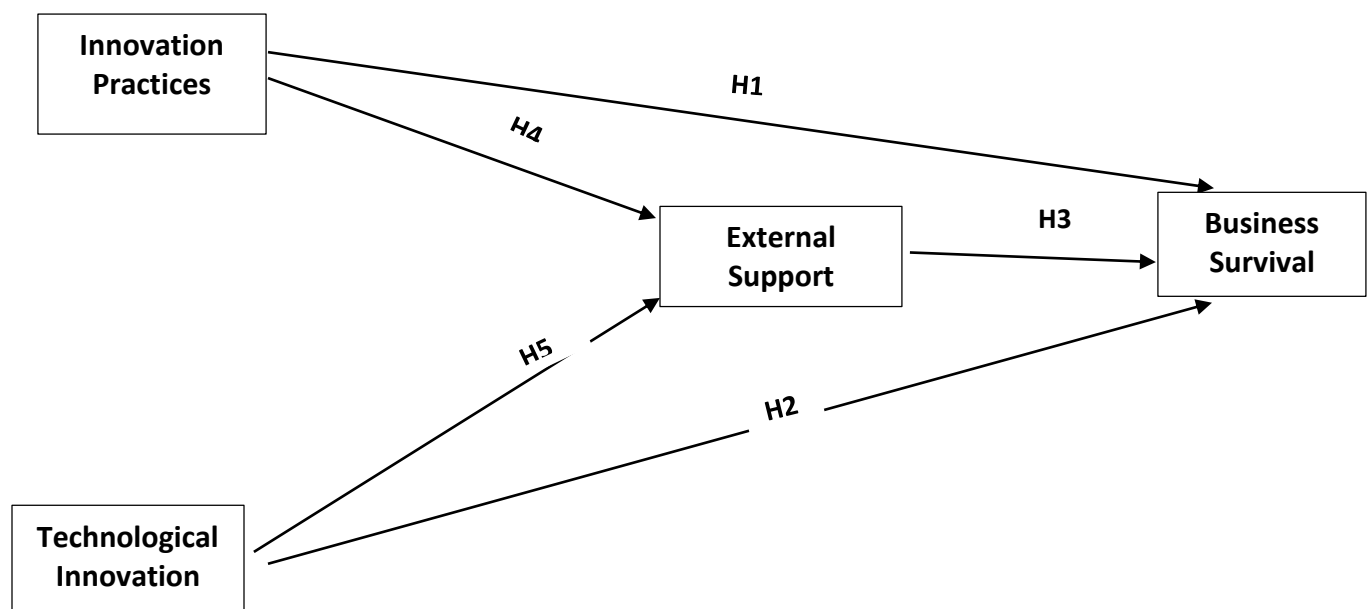
Theoretically, technical innovation refers to how businesses design and manufacture new products and services. Furthermore, previous research findings suggested that technology is a factor in SME success. (Ferreira et al., 2015). Many other members of the community benefit from the company's longevity in addition to its management. Customers, vendors, and employees are some of them (Bercovitz& Mitchell, 2007). Researchers agree that a company's capacity to survive is one factor in how well it performs (Nwachukwu &Oseghale, 2010). If a company can adapt to its environment and circumstances as they change, it will succeed (Kreiser& Marino, 2002). SMEs outlive large corporations, are more profitable, and have a bigger effect on environmental factors outside of their control (Carroll &Huo, 1986). Some professionals think that surviving is a reliable gauge of business success (Crawley et al., 1997).

H5: Technological Innovation mediates the relationship between SMEs' survival and external support.

Theoretical framework

Figure 1

A research framework





Methodology

In this study, the inductive method was employed to start with specific observations and then build conceptual hypotheses. It progresses from the specific to the general (Locke, 2007). The second strategy is the deductive approach by examining the literature and identifying gaps in earlier work, then shifts to a specific area related to the topic of interest. To put it another way, it's a method of shifting from broad to specific (Woiceshyn & Daellenbach, 2018). This study is cross-sectional since the data have been collected from multiple respondents simultaneously.

The participants in this study include Gujranwala University. SMEs of Gujranwala were chosen as responders in this study because they have significant expertise with phenomena and sufficient work experience. Online questionnaires were used in the collection of the data. The nonprobability sampling was employed and a sample of 250 respondents was taken.

Empirical Results

This section shows the demographics results where 132 males and 118 females participated in this study. According to the data, 49.6% of respondents were between the ages of 20 and 25 and 7.0% were under the age of 20. Between the ages of 25 and 30 made up 24.3%. 2.5% of the population was over the age of 40, and 4.6% were between the ages of 30 and 40. In the second part of the age breakdown table presented earlier, it shows that the majority of respondents were between the ages of 20 and 25 respondents. It can be observed that people aged 40 years to onward have a percentage of 7%. The qualification of respondents consists of four options, i.e., Graduation (4 Year Hons), Masters (3 Years), M-Phil (1.5 Years), and PhD. 35.2% of respondents were Graduated, 79.0% were from MS/M-Phil, and 6% were from PhD. Finally, the Demographic table represents the Income ratio of the respondents, in which most of the respondents had 0/- to 24,999/- PKR.

Reliability Analysis

According to the table, the Cronbach's alpha for all of the variables is higher than 0.7, which indicates that the scales are credible (Morgan et al., 2004).



Table 1
Inner Item Consistency-Cronbach Alpha

Variable Names	No. of Items	Cronbach's alpha
Innovation Practice	5	0.779
Technological Innovation	5	0.814
External Support	4	0.779
Business survival	4	0.725

Descriptive Statistics

In this portion of the analysis, we covered the values of Mean, SD (Standard Deviation), and skewness, all of which contribute to the determination of whether or not the data are normal. Researchers look at the minimum and maximum figures as part of their descriptive analysis to help identify and remove outliers. Descriptive statistics provided an explanation for the pattern as well as the extent to which variables existed. The range of skewness numbers that are within the acceptable range is from -3 to +3(Morgan et al., 2004). The skewness numbers in this table, which range from -3 to +3, indicate that the data is normal (Morgan et al., 2004).The minimum and maximum values should be within the limits of the measuring range of the instrument in order to show the validity of the data.As was just shown, the maximum and minimum numbers can be anywhere between 1 and 5 on the Likert scale. Across all of the independent and dependent variables, there isn't a single number that goes below 1 or above 5. The lowest and highest numbers, as well as the skewness statistics, are all within acceptable bounds. The data that was gathered for this investigation is therefore suitable (Coskuncay, 2013).This is also the most important and fundamental assumption that goes into regression analysis.



Table 2
 Descriptive Statistics

Descriptive Statistics							
	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. S Error	Stat
IP	250	2.80	5.00	4.4096	.50211	.922	.154
TI	250	1.80	5.00	3.8696	.61816	.581	.234
ES	250	2.00	5.00	3.5232	.45117	.124	.224
BS	250	1.60	5.00	4.6112	.56158	.705	.164

Correlation Matrix

The correlation between variables was discussed in this section of the analysis. Table 6 shows correlation analysis at 0.05 significant levels, with significant relationships between all variables (Morgan et al., 2004). In this research, SPSS version 26 was used to calculate the correlation. According to correlation, if one variable changes, the others tend to change by a certain proportion.

Table 3
 Correlation Matrix

Correlations				
	IP	TI	ES	BS
P	1			
TI	.315** .000 250	1		
ES	.543** .000 250	.346** .000 250	1	
BS	.468**	.421**	.482**	1

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



The correlation coefficients between the independent variables (innovation practises and technological innovation), mediating variable (external support), and dependent variable (business survival) were, respectively, .468**, .421**, and .482**. Given that the Pearson correlation coefficient is in the range of 0.0 to 0.5, there is evidence of a moderate connection between the study's variables (Coskuncay, 2013).

Regression Analysis

Throughout the regression study, the R showed a wide range of correlation coefficients. The IV and DV relationships are combined to produce it.

Table 4
 Regression Analysis

<u>Model</u>	<u>Unstandardized Coefficients</u>		<u>Standardized Coefficients</u>	<u>t</u>	<u>Sig.</u>
	B	Std. Error	Beta		
(Constant)	1.330	.307		4.338	.000
BS	.576	.069	.468	8.335	.000

N = 250, R = 0.468, R square = 0.219, adjusted R square = .216; F Stat= 95.149; p<0.01

Dependent Variable= BS (Business survival)

Predictor:BS (Business Survival)

The coefficient value of 0.576 indicates a moderate relationship between the dependent variable and both independent factors. R square is a metric for assessing the model's capacity for reasoning. It showed the variance in the dependent variable that the independent variable was able to account for. The R-number rectangles have to fall between 0 and 1. (2004) Morgan et al. university in Gujranwala. The connection's inclination is known as beta. However, the significant value of the innovation practises and technical innovation variable is less than 0.05. At the same time, the t number is higher than 2. The t value is 4.338 and 8.335, which demonstrates that the variables are strongly positively related according to the theory. As a result, hypotheses H1 and H2 are accepted and there is a substantial relationship between IVs and DV (Morgan et al. 2004).



Table 5

Mediation Analysis of External Support

Mediation Analysis of External Support

	Coeff.	SE	T	P	LLCI	ULCI
INT_1	.1495	.1061	6.543	.003	.0595	.3584

The table demonstrated that since the primary paths H1 and H2 are significant, the T-value is 6.543, which is higher than 2, and less than 0.05 ($p > 0.05$). The primary path being important, further mediation steps were examined. This demonstrates that hypotheses H3 and H4 are accepted.

Hypothesis Summary

Table-6

Hypothesis Summary

Hypotheses	Statement of Hypotheses	Result
Hypothesis 1 (H1)	Innovation Practices have a significant impact on SME Survival.	Accepted
Hypothesis 2 (H2)	Technological innovation has a significant impact on SME Survival.	Accepted
Hypothesis 3 (H3)	SMEs' survival has a significant impact on External Support.	Accepted
Hypothesis 4 (H4)	Innovation Practices mediate the relationship between SMEs' survival and External Support.	Accepted
Hypothesis 5 (H5)	Technological innovation mediates the relationship between SMEs' survival and External Support.	Accepted

Theoretical Implications

The covid-19 crisis has had a massive influence on humans, institutions, society, and the world. Since research examines Innovation Practices and Technological Innovation in the expected framework of survival of SMEs in the organization, hence; no works on Innovation Practices or change management deal with rapid and volatile organizational change. This study made an addition to the literature by arguing that external support can assist a business in achieving more favourable results from innovation practises in the form of improved performance and



strengthened survival indicators during times of crisis, like COVID-19. Crises usually have a detrimental effect on a business's performance and viability (Morgan et al., 2004)

Practical Implications

The findings of this study also point to some recommendations regarding innovation Practices and Technological Innovation and their implementation in organizations for management practitioners. As Covid-19 continues playing out worldwide, it becomes clear that trust ultimately needs innovation to give hope, a realistic long-term plan of SMEs survival, and advice on how to achieve it.

Research Limitations

Although this study makes various contributions, it also has some limitations. At first, the Researcher used a cross-sectional research design. The sample size chosen is comparatively small from only one city, Gujranwala. Future researchers may collect data from more respondents or more than one city. A longitudinal research could also reveal how innovation practises and technological innovation affected SMEs' ability to survive the Covid-19 crisis. Lastly, during the Covid-19 pandemic, researchers gather information from the Businesses in Gujranwala. Future scholars might gather information from other industries. Lastly, the study's context—the setting in which this research was conducted in Pakistan—can be altered.

Avenues of Future Research

The advice for the future is to choose a different nation because this epidemic affects everyone worldwide. In a similar vein, this study only considers the study skills of a select few students. Research on innovative practices (an independent variable) and other aspects of innovation, such as leadership, renewal, employee activities, and marketing activities, may be undertaken in the future. Future researchers could also look at how the Covid-19 pandemic has affected SME performance over the long run.

Conclusion

In the current study, a theoretical model is proposed that is based on five fundamental hypotheses about the relationship between these variables. The purpose of this study is to investigate the moderating impact of external support provided during the COVID-19 epidemic crisis in order to strengthen the link between COVID-19 epidemic crisis repercussions on SMEs. The primary findings of the study indicate that the capacity to survive for small and medium-sized businesses (SMEs) is dependent on both technical and innovative approaches to innovation. In addition, the



findings of the research provided support for the significance of the external assistance that was provided to SMEs during the COVID-19 epidemic catastrophe, as well as its moderating impact and the resiliency of the SMEs.

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