Determinants of Business Resilience During Disasters: Inputs for the Development of a Business Continuity Mobile Application

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Abstract

This paper aimed to identify the relationship between the dependent variable (business resilience) and independent variables (entrepreneurial orientation, crisis management, external support and linkages and communication and social media). Moreover, it aimed to investigate whether establishment type moderates the relationship between dependent and independent variables. There has been no study to the best knowledge of the proponent which was done to measure the level of resilience in the context of post-disaster and pandemic recovery particularly in Lipa Batangas. The study was quantitative in nature and employed simple linear analysis. Modified questionnaire was distributed to 133 MSME owners which were determined through simple random sampling. The results revealed that entrepreneurial orientation, crisis management, external support and linkages and communication and media significantly predict business resilience. In addition, establishment type does not significantly moderate the association between the determinants and business resiliency among MSMEs, according to multiple regression analysis. Hence, the introduction of a business continuity mobile app would be relevant to help MSMEs withstand any crisis. The app is called BAU360 which served as a one stop shop for MSMEs and would employ in-app advertising revenuemodel and businessaggregator model. It was also recommended for future researchers to carry out research on a provincial or regional scale to fill in the gaps particularly in ownership type and establishment type as the current study respondents were sole proprietors and operating under cottage and micro category. They could go after corporations as well as small and medium-sized firms.

Keywords : Business Resilience; Micro Small Medium Enterprise; Business Continuity

1.0 Introduction

Today, keeping the business afloat is more challenging than ever. Disruptions caused by natural disasters and unprecedented health emergencies continue to threaten the management and survival of businesses worldwide. In recent years, these disasters and emergencies had devastating effects on Micro Small, and Medium Enterprises (MSMEs). It can disrupt operations, procurement, production, and logistics which in turn can cause unstable cash flow and employee layoffs. (Ginathilaka, 2017) Like many areas in the Philippines, Lipa City is visited by typhoons and is located within the Taal's 20kmdanger zone which means it can be hit the hardest in the event of a hazardous eruption. To say that 2020 was a challenging year for everyone may prove to be an understatement particularly in Lipa and the whole province of Batangas. Two months after Taal's sudden eruption, here comes the spread of Covid 19 which was later declared by the World HealthOrganization as a pandemic. These events have created huge impacts on local enterprises in the area.

The engine of growth and development is said to be brought about by MSMEs. In the Philippines, these enterprises played an increasingly important role in promoting growth which is not limited to the creation of wealth or capital. They are vital to spreading new industries to the countryside and producing employment. These types of businesses are more likely labor-intensive, thus providing jobs wherever they are established. (Miranda, et.al 2018) However, because of the nature of their business, lack of financial expertise capabilities, they have high vulnerability and low resilience towards Natural Hazards. (Auzzir, 2019)

According to the Department of Trade and Industry, MSMEs in wholesale and retail constitute 99.5% of the total number of businesses operating in the country. With typhoons, earthquakes, volcano eruption and a pandemic that hit the country specifically in Lipa City, it is important to measure the level of resilience of MSME and the factors affecting it such as entrepreneurial orientation, crisis management, external support and linkages and communication and social media and business continuity mobile application might be relevant to address their slow recovery in times of crisis. In addition, this research is essential as MSMEs are the backbone of the national economy (Shigehiro, et.al, 2021). The reason for this is their ability to offer employment opportunities to the residents in a locality. They are dubbed as "Heroes of Economy" due to their huge help in reducing poverty and contribute a significant amount to the country's GDP. (Singh, et,al,2017) The data from DTI revealed that 38% of the MSMEs in the country had to shut down amidst pandemic. Looking for ways to encourage them means helping the Philippines towards growth and sustainability because experts believe that they are the key to economic recovery of the country. They make up the lion's share of the business running in the country and 2/3s of the workforce is employed by MSMEs. (Ronquillo, 2021)

In the Philippines, numerous studies have been conducted to assess disaster preparedness of the community but no study to the best knowledge of the proponent has been done to critically assess resilience in the context of post-disaster and pandemic recovery, particularly in Lipa, Batangas, which declared state of calamity twice in a year due to the continuing eruption of Taal volcano and Typhoon Quinta. (Tupas, 2020) This paper intended to achieve the 8th Sustainable Development Goal (SDG) which is to promote inclusive and sustainable economic growth, employment, and decent work for all.

In order to do this, the proponent focused on identifying the relationship between business resilience and the established factors. Moreover, this paper aimed to investigate whether business resilience would be significantly affected if establishment type acts as moderating factor. It targeted MSME owners engaged in wholesale and retail in Lipa Batangas. In addition, the reason for choosing the locale is due to the fact that CALABARZON currently holds the second spot in terms of regional distribution and the city has been challenged by natural calamities in the past year.

The subject would be presented to the public through the use of social media platforms in addition to the publication of a thesis paper. To boost internet traffic for the suggested mobile application of BCM, informative graphics and videos would be uploaded. Apart from collaborating with the Department of Trade and Industry Region IV-A, the proponent planned to make this a start-up business which can be a huge help for MSMEs in these trying times. The mobile application would employ an in-app advertising revenue model. The target advertisers are local businesses, suppliers and retailers in the area and surrounding cities.

Lastly, to help MSME owners in strengthening business resilience in the impact of nature's wrath or an unforeseen crisis, the proponent suggested on developing a mobile application for business continuity management. This is named BAU 360 —short term for Business as Usual 360. This app is designed to be a one stop shop for MSMEs as it has different sections including real time reports from City Disaster Risk Reduction Management Council of Lipa, support and search functions , the business continuity plan of the enterprise and links to various services that businesses usually need such as legal, financial, logistics and marketing . In other words, BAU360 will served as a business

aggregate. Regarding the BCM plan feature, MSMEs are asked to fill in all information regarding their business including their key necessary resources, risk assessment, survival strategies, emergency response and their continuity strategy. It also has a communication system wherein they can track the whereabouts of their employees and contact details of everyone involved in the organization. A business continuity plan (BCP) outlines how a business can continue to operate in the event of unanticipated and unexpected disasters. Such plan lays out the company's strategy for continuing service/product delivery in the event of a disruption, like a natural disaster or a fire.

Review of Related Literature

Disasters are bad for business, especially for small and medium-sized enterprises. These catastrophic incidents have the potential to threaten capital, supply chains, product markets, and labor. Physical damage and disruptions in supplies and labor might result in temporary business closure, while extensive damage can lead to permanent closure. Building restorations and the recovery or replacement of damaged equipment required to restore operations entail a significant investment of time and money. The negative impact maybe not be just short-term, but also medium- to long-term. In 2014, when Super Typhoon Yolanda hit the Philippines, it left 31.13 billion pesos damaged, particularly in the agricultural sector. (Poverty Reduction and Economic Management Unit, 2014)

In 2020, the world was not ready when Covid 19 was declared a pandemic. From the health crisis, it evolved into an economic and employment crisis, affecting people regardless of race or living conditions. The report by Biswas (2021) upheld this claim. The results show that the Philippine economy fell into a significant recession in 2020 because of the COVID 19 pandemic, with GDP shrinking 9.6% year-on-year. This was the largest annual decline on record since the beginning of the Philippine NationalAccounts series in

1946. In March, Bangko Sentral ng Pilipinas (BSP) revised its 2021 current account surplus forecast to $ 9.1 billion, or 2.3% of GDP.

Accounting for more than 99% of registered businesses and employing more than 60% of the national workforce in the Philippines, Micro Small, and Medium Enterprises are considered the lifeblood of the country. (International Trade Center,2020) Ballesteros & Domingo in 2015 characterized MSMEs as informal and non-compliant with norms and regulations making them less resilient in the impacts of natural disasters and emergencies. When calamities and health emergencies such as the Covid 19 pandemic hit the country, MSMEs are continuing to face a sharp drop in demand and revenue and are struggling to survive. (International Labor Organization, 2020) One of the major reasons for this is their lack of preparedness. (Chua,2021) Philippine SME Resilience Survey revealed that only 6% of the MSMEs have written a business continuity plan (BCP).

Business Resilience

Organizational resilience according to a number of authors (Meyer, 1982; Weick, 1993; Weick, 1999; Hamel & Valikangas, 2003; Hollnagel, 2006; Boin & McConnel, 2007) is a firm's way to recover from an internal or external disturbance and go back to a stable state. (Gilly et.al 2020) Business resilience refers to an institution's dynamic ability to withstand catastrophe. (Vargas, et.al 2019) It emphasizes the firm's capacity to keep it in a good state or even develop a better skill in disruptive conditions,(Xiao &Cao, 2017) and it goes on to say that resilience is the quantifiable set of attributes or capabilities that enables the firm to endure known and unknown disturbances while also still surviving. (Ruiz et.al ,2018)

Resilience is often used to refer to the ability of an organization to respond quickly and recover faster after an unexpected and abrupt event. (Linnenluecke, 2015) In their study, Sanchis et.al 2020 described enterprise resilience as the key to achieving long-term continuity. The authors identified 71 disruptive events that endangered the capability of a business to ensure an undisrupted flow of operations. They found out that in order for companies to be resilient, disposition and preparation are the keys. In addition, 403 preventive actions are also formed.

Mavrodieva et. al 2019 argues that governments, notably in Indonesia, the Philippines, and Thailand, play a critical role in formulating appropriate laws and legislation, as well as providing the essential infrastructure and investment climate for SMEs to prosper. The present level of SME disaster resilience involvement in the three SEA countries studied in this article was remarkably low. Several of the causes come from the fact that SMEs frequently lack expertise in risk management approaches. Other factors include a lack of collaboration among appointed administrative bodies tasked with promoting small-business resilience and a lack of sectored SME organization and participation in local and national policies. Despite the low level of SME engagement currently in place, governments in these nations have been improving policies aimed at increasing SME resilience.

Idayat et.al 2020 conducted a study in order to examine the influence of entrepreneurial personality in utilizing technology and government support for business resilience through crisis management as an intervening variable to find out factors influencing the resilience of MSME entrepreneurs in the worldwide spread of the COVID-19 pandemic. They have concluded that entrepreneurship personality and crisis

management have a favorable significant association. It was also revealed that there is no discernible link between the use of technology and crisis management.

Entrepreneurial Orientation

According to Campos (2016), enterprise resilience (ER) is multidimensional and consists of five factors that should be looked upon to strengthen the adaptive capacity against natural calamities. One of the factors affecting ER is called entrepreneurial orientation (EO). It refers to the characteristics an entrepreneur possesses such as being risk-taker, proactive, competitive, aggressive, and autonomous. (Kelly, 2016) This canbe viewed as a critical aspect in ensuring a company's success. (Alshugaa, 2019) A study in Nigeria looked at the entrepreneurial attitude and resilience of medium-sized businesses. The authors found out that entrepreneurial orientation has a strong link to organizational resilience. It was recommended that firms should be realistic about their strengths, weaknesses, and vulnerabilities so that they can take appropriate action when necessary while focusing on employee contribution and enablement so that employees can always exhibit appropriate behaviors when faced with adversity. (Amah and Korgba, 2018)

Another study from Asyari(2020) in Indonesia focused on EO and how it affected the performance of SMEs. Companies are shown to have varying levels of Entrepreneurial Orientation when it comes to decision-making. There is information on the three characteristics of EO (innovativeness, proactiveness, and risk-taking), and innovativeness was shown to be the top priority compared to proactiveness and risk- taking. Using moderating variables, the study also discovered that EO has an impact on SMEs' performance. However, the influence of Entrepreneurial Orientation on the success of

SMEs in West Sumatra is not strengthened by the level of competition, market volatility, or technology. (Wardi et.al, 2017)

Crisis Management

The second factor identified was Crisis Management (CM). The application of techniques aimed to assist an organization in dealing with a sudden and severe negative event is referred to as crisis management. (Zamoum & Gorpe, 2018). Any firm can be hit by a crisis at any time, and it wouldn't care about the size or reputation of the company. It occurs when a company least expects it. (Oparanma, 2014) In 2016, Merendino discussed that resilience, human trauma, sustainable supply chains, recovery procedures, risk management, and measurement methodologies, and sustainable management are all current concerns in crisis management for enterprises. Customers typically get a far more honest picture of a company's operations from how it handles a difficult crisis than a carefully crafted press release could ever provide.

Williams et.al (2017) wanted to move crisis management away from its concentration on exceptional occurrences and link it with the concept of resilience. As a result, they wanted to better comprehend why some organizations effectively adjust and even prosper in the face of adversity while others do not. In line with this, they developed a framework focused on fundamental themes of both crisis and resilience such as durability, organization, and adjustment, responding to large disturbances, and a feedback loop from these experiences.

In Macau, China, researchers found out that small businesses are the ones that are most affected by the sudden drop in demand. When compared to large businesses, new startups and small businesses show

a lot of flexibility in sudden changes as they lack bureaucracy and social responsibility compliance.(Alves et.al 2020)

External Support and Linkages

On the other hand, external support and linkages were the also predictors of business resilience identified by Campos (2016). It pertains to government, customers, suppliers, universities, or research organization support and collaboration in providing details on advancements, consumer demands, or participating in collaborative research and development. (Licayan, et.al, 2020) When faced with disasters, business owners with ties to the community and institutions did better. (Torres, et.al 2018) In the Philippines, the Department of Trade and Industries has been a support center for MSMEs in their entrepreneurial journey. DTI is constantly launching new programs to help MSMEssurvive and prosper in the midst of the pandemic. (Crismundo, 2021) In 2016, they launched the Project KAPATID through a collaboration with Philippine Center for Entrepreneurship (PCE) aimed at assisting the country's MSMEs through three programsnamely Mentor Me, Adopt-an-SSF (Shared Service Facility), and inclusive business. Theeffectiveness and impact of government support like this were proven by a study conductedby Mendoza and Castillo 2021. The Office was presented with a glimpse of how KMME graduates perceived the program and its mentors. It provided an assessment of how KMMEinfluenced the lives of its alumni to the DTI-Davao City office. According to the study's findings, the respondents, who were chosen using a purposive sampling technique, claimed that the KMME program's 10 modules, as well as their mentors' knowledge, had enabled them to become better entrepreneurs. As a result, all of those who participated in KMME had a capital of less than P100,000 and had been operating their food business for less than

five years. They claim that after adopting and executing what they learned through the training, their sales increased dramatically.

Communication and Social Media

During a crisis, timely management communication is critical. Tong and Nong (2018) concluded that professionals use social media as a channel for efficient crisis communications along with management. This leads to the third factor identified by Campos (2016) in his study which is communication and social media. This provides clarity and direction to employees, consumers, and partners. During a crisis, communication plays a critical role in stabilizing and advancing the company by instilling confidence, earning trust, and involving stakeholders. To successfully maintain company continuity and recover, there must be clear and consistent communication (Zemke, 2020)

Meanwhile, social media has been widely used as a communication tool by people in times of disasters and emergencies. This was proven by a study from Saroj and Pal (2020) when they concluded that people used social media more frequently than they used to. Thoughts, photos, videos, and emotions are all shared with their family as well as the public. This amazing tool has proven its usefulness to the point that government and other crisis-response organizations began to employ it in giving out cautions, alerts, status and updates, and alps data collection information on the ground. Additionally, this channel must be included in crisis response plans as argued by Anthony et.al 2021 due to its accessibility and can also be used in mapping disasters and allowing rescuers to better understand the position and distribution of areas most affected by incidents.

In addition, social media is also essential in building resilience. Findings from Yi et.al (2021) revealed that MSMEs can produce new business ideas through mass

engagement using social media and advanced data analytics. Due to the pandemic, another study was done with SMEs in the Special Region of Jakarta regarding the use of social media in marketing during the crisis. According to the results, SMEs affected by COVID 19 have a high awareness and strong desire to use social media in connecting and advertising with customers. (Effendi, et.al, 2020)

Recognizing the significance of understanding MSMEs' preparedness and adaptability during these trying times, and the reality that MSMEs make up most businesses, it's critical to know how resilient they are in the face of disasters and emergencies, considering entrepreneurial orientation, crisis management, external support and linkages and communication, and social media and using and establishment type as mediating factors.

Conceptual Framework

In their study, Licayan et.al 2020 adopted a framework based on the literature and studies reviewed. The variables highlighted were incorporated into the framework to investigate the perceptions of business owners regarding the present Covid-19 pandemic and post-pandemic economic activity.

Despite substantial study in the field of business resilience, a rigorous examination and theorizing of the major factors applied is still required in business to a context-based resiliency strategy.

Figure 1. Conceptual Framework

INDEPENDENT VARIABLES

DEPENDENT VARIABLE

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┌──────────────────────┐              ┌──────────────────────┐
│ Entrepreneurial      │              │                      │
│ Orientation          │              │  Business            │
│ Crisis Management    │              │  Resilience          │
│ External Support and │              │                      │
│ Linkages             │─────────────▶│                      │
│ Communication and    │              │                      │
│ Social Media         │      ▲       │                      │
│                      │      │       │                      │
└──────────────────────┘      │       └──────────────────────┘
                  ┌───────────┴──────────┐
                  │ Years in Business    │
                  │ Establishment Type   │
                  └──────────────────────┘
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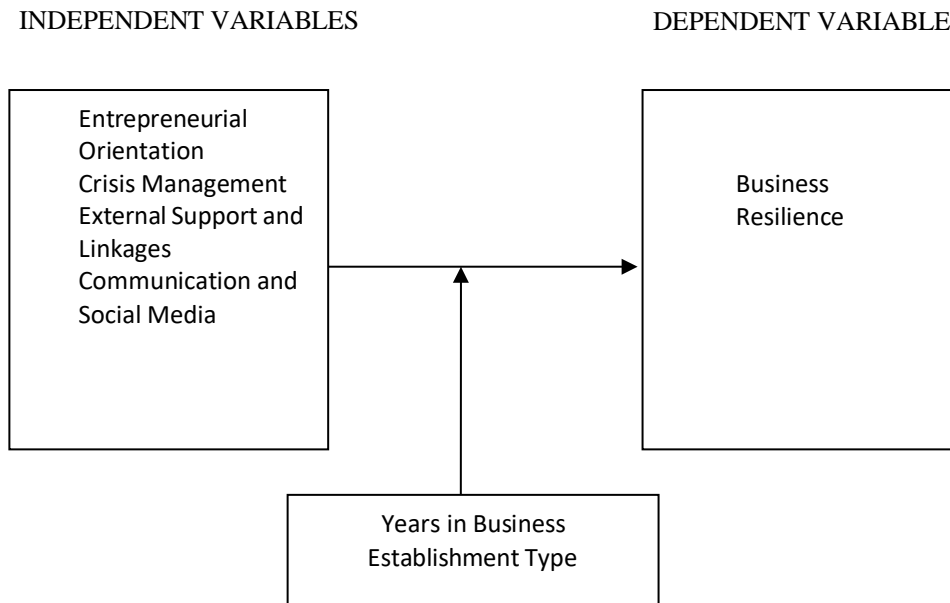
Source: Predictors of Business Resilience among Micro, Small, and Medium Enterprises in Monkayo Davao De Oro, Philippines in the Context of Covid-19 Pandemic (Licayan, Elvin, Sagarino, Delos Reyes, 2020)

The model also represented that entrepreneurial orientation, crisis management, external support and linkages, and communication and social media significantly predict business resilience and years and business and establishment type are expected to moderate the relationship between dependent and independent variables. Their study has found out that Micro, Small, and Medium Enterprises (MSMEs) in Monkayo Davao have a high level of resiliency (MSMEs). It was also discovered that when respondents are divided into two groups, there was no significant difference in the level of business resiliency among MSME when the respondents are grouped by establishment and years. Years in business do not significantly mitigate the association between the relevant variables, according to the

analysis. However, there was a strong moderating influence in the relationship between variables and business resiliency among MSMEs in terms of the sort of establishment.

Operational Framework

Licayan et.al 2020 has proven in their study that the factors that determine MSMEs resiliency were not significantly moderated by years in business. Hence, the proponent opted to omit the years in business as moderating variable and retain establishment type as it was revealed that it significantly moderates the factors identified that influence business resiliency. This study is guided by the operational framework stated in Figure 2.
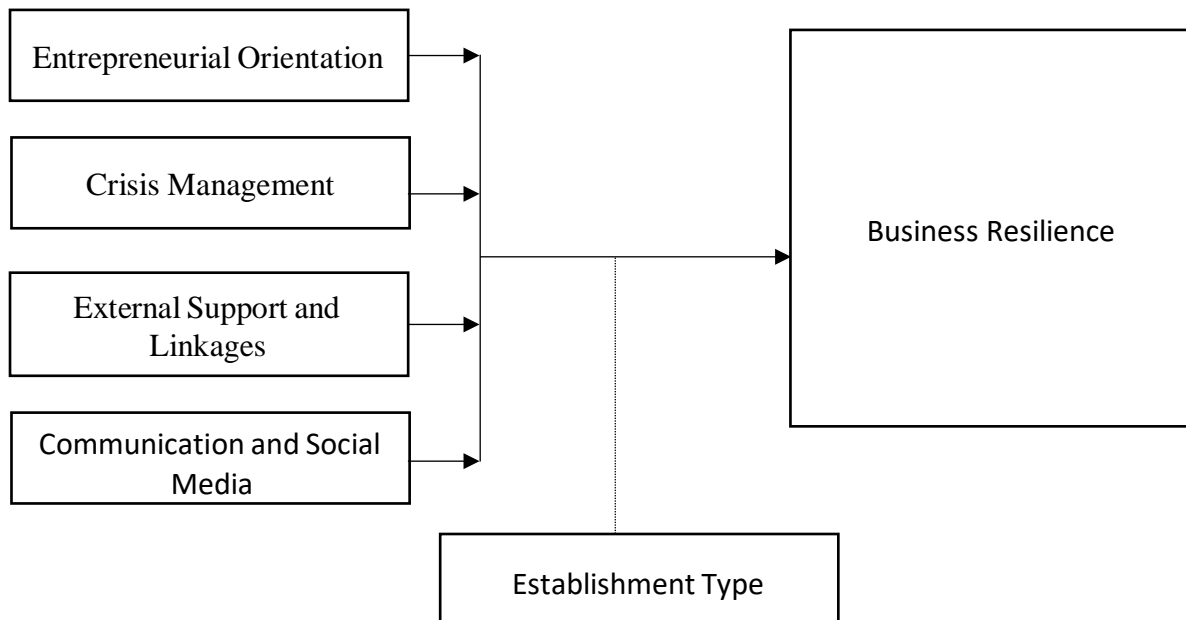

Figure 1.2

Operational Framework

In this study, the dynamic power of an organization to endure extreme adversity is referred to as business resilience. While entrepreneurial Orientation (EO) is a strategic

orientation that encompasses an organization's strategy-making practices, management beliefs and entrepreneurial company activities.

Meanwhile, the implementation of measures aimed to assist an organization in dealing with an unexpected and unpleasant incident is referred to as crisis management. Additionally, external support and linkages concerns the support and cooperation of governments, suppliers, universities, customers in providing details on progress, consumer requirements or participating in collaborative research and development. Moreover, the interaction between people who exchange and share ideas in virtual communities and networks are under communication and social media. Lastly, establishment type pertains to the type of business organization such as Cottage & Micro business with total assets of not more than 3 million pesos; Small business with total assets of more than 3 million to 15 million pesos; and Medium business with total assets of more than 15 million up to 100 million pesos.

Based on the operational framework, the main objective of this study was to determine the level of business resilience of MSME owners in Lipa City, Batangas. The paper aims to answer the following specific objectives:

1. To determine the level of entrepreneurial orientation, crisis management, external support and linkages, and communication and social media among Micro, Small and Medium Enterprises in Lipa Batangas.

2. To determine the level of resilience among MSMEs in Lipa Batangas.

3. To determine if entrepreneurial orientation significantly predict the business resilience of MSMEs in Lipa Batangas.

4. To determine if crisis management significantly predict the business resilience of MSMEs in Lipa Batangas.

5. To determine if external support and linkages significantly predict the business resilience of MSMEs in Lipa Batangas

6. To determine if communication and social media significantly predict the business resilience of MSMEs in Lipa Batangas

7. To establish if the respondent's establishment type moderates the relationship between the independent variables and dependent variables among MSMEs.

The results of the study are supposed to provide insights into the level of resiliency of MSMEs in the country which can be a guide for the proponent in developing a mobile application and for government agencies and private organizations engaged in assisting local entrepreneurs in making laws or programs that are beneficial and helpful to MSMEs especially now that the country is starting to recover from the effects of the disasters and emergencies in the past two years.

Hypotheses

H_{o1} : Entrepreneurial Orientation does not significantly predicts business resilience.

H_{o2}: Crisis Management does not significantly predict business resilience.

H_{o3}: External Support and Linkages does not significantly predict business resilience.

H_{o4}: Communication and social media does not significantly predict business resilience.

H_{o5}: MSMEs establishment type does not significantly moderate the relationship between the independent and dependent variables.

3.0 Methodology

To describe the relationship that naturally occurs between the independent variables (entrepreneurial orientation, crisis management, external support and linkages and communication and social media) and the dependent variable (business resiliency), the study is quantitative in nature and employed simple linear regression analysis. Through regression, one or more independent or control variables can be used to explain variability in the dependent variable. (Kumar, 2022)

The survey questionnaire (Appendix A) was modified from Licayan, et.al (2020) to better understand what contributed to the business resilience of the target respondents. The statements were changed from opinion based to experienced based to have a better view on the contents to be used in the mobile application. Practices and processes with a favorable composite mean and were significant to business resilience were adapted and included in designing the features of the output. Items with low composite mean on the other hand were not dropped as these provided a clear picture on what to be improved and addressed to better help these enterprise owners. The questionnaire was sent to MSME owners engaged in wholesale and retail in Lipa Batangas. Data from the Department of Trade and Industry Region IV office revealed that there are 2332 registered businesses under the wholesale and retail categories.

The instrument was pilot tested with twenty (20) entrepreneurs in Lipa Batangas. Cronbach alpha values of 0.60–0.70 are acceptable, however values greater than 0.70 are highly recommended. (Hair, et.al 2014). The results revealed that all variables' Cronbach's alpha values are acceptable, meaning that the items meet the criterion. The results are reported in Table 1.

Table 1.

Construct Reliability Statistics

Variable	Cronbach Alpha
Entrepreneurial Orientation	.742
Crisis Management	.862
External Support and Linkages	.835
Communication and Social Media	.951
Business Resilience	.915

To determine the respondents of this study, simple random sampling was used since DTI provided only the number of businesses under the abovementioned category. 133 MSME owners were selected as the sample size which was generated using G*Power statistical tool with the input parameters (Effect size = 0.10; α error = .05; Power= .95; Number of Predictors= 2).

Data gathering were carried out through a combination of online and personal interaction. The researcher prepared google form for participants to answer at their most convenient time. Referrals from one entrepreneur to another was done to make sure that the data would be reliable Also, to speed up the process and assure more accurate answers from the business owner himself, face-to-face data collection was executed. To assure the safety of the respondents as well as the researcher, proper health protocols were observed and followed.

The questionnaire was divided into 4 parts. Consent cover letter can be found in the first part of the questionnaire. It contained the request of the proponent to answer the questions as well as the reminders regarding voluntary participation, withdrawal without

penalty, estimated time of completion, and confidentiality of the information gathered. The second part is all about the business profile. The third to fourth part comprises 43 questions divided into five sections that determine the level of emergency response and preparedness of the enterprises.

Table 2

Questionnaire Specification

PART	VARIABLE	ITEM No.
1	Profile of the Business	
2.1	Entrepreneurial Orientation	1-9
2.2	Crisis Management	10-18
2.3	External Support and Linkages	19-27
2.4	Communication and Social Media	27-35
3	Business Resilience of MSMEs	36-43

All the questions used the Likert scale with 6- point measurement ranging from 1 as Strongly Disagree to 6 as Strongly Agree to determine the influence of entrepreneurial orientation, crisis management, external support and linkages, and communication and social media to the business resilience among MSMEs as well as to analyze the moderating variable. The degree of the responses for each factor will be assessed and interpreted using the Likert Scale as follows.

Table 3

Rating Scale Description for the Research Instrument

RATING SCALE	MEAN SCORE RANGE INTERVAL	RESPONSE ANCHOR	DESCRIPTIVE LEVEL
6	5.20 to 6.00	Strongly Agree	Extremely High
5	4.36 to 5.19	Agree	Very High
4	3.52 to 4.35	Somewhat Agree	High
3	2.68 to 3.51	Somewhat Disagree	Low
2	1.84 to 2.67	Disagree	Very Low
1	1.00 to 1.83	Strongly Disagree	Extremely Low

To present, interpret and analyze data coming from the respondents, mixed statistical tools were utilized. In addition, to determine the business background of the respondents, frequency counts, and percentages were applied. The responses to factors influencing business resiliency among MSME owners were analyzed using mean scores and standard deviation. Through Analysis of Variance, grouped mean score comparisons are made across the respondent's profile factors such as establishment type (ANOVA).

The factors that predict the business resiliency were determined using Simple Linear Regression Analysis. Multiple Regression Analysis was also employed. The hierarchical technique is where associations of independent variables are entered cumulatively in accordance with a hierarchy indicated by the study hypothesis or logic and used when there is a theoretical basis for one or a group of independent variables to be in the model before another. It is a multiple regression analysis technique in which the variables were entered one at a moment in the regression equation as determined by the researcher through Process v3.4 by Professor Hayes (2018).

Ethical Considerations

To gather the needed data from Lipa City Permits and Licensing Office and Department of Trade and Industry, the proponent sent letters of request through emails and made phone calls for follow-up.

The researcher complied with the requirements of ethical standards, including but not limited to:

Voluntary Participation: All respondents were given the free will to take part without any form of exploitation or intimidation.

Respect for anonymity and confidentiality: The researcher understood that people's consciousness may also affect honesty, adequacy, and effectiveness in answering the survey so she gave the participants an option to be anonymous.

3.0 Results and Discussion

Descriptive Demographic Profile of the MSMEs

The table below shows the respondents' profile in terms of nature of business, ownership type, years in business, and establishment type. According to the data, most companies were owned by one or two people and were also known as sole proprietors. This was in line with the study of Kampos (2016) and Licayan, et.al (2020) who concluded that majority of the businesses in their research locale were ran by a single person as this was the easiest type of business to start or shut down due to lack of government control. (Twin,2021) It comprised a total of 86% while corporation accounted for 9% of the respondents and partnerships with the least number at 5%. Meanwhile, 45% percent of those surveyed have been in business for 1-5 years, with 26% for 11 years and above. 16% percent had been operating for 6-10 years, and 13% were businesses operating for 0-11 months. This indicated that most surveyed enterprises were opened during the pandemic. Data from DTI confirmed this as there were 916,163 total registrations, with 91 percent being new and the rest being renewals. This is about 44% more than the overall registration of 637,567 in 2019 as reported by Canivel (2021). Lastly, majority of the respondents identify their businesses to be micro-enterprises accounting for 74% of the total answers. And only 26% represents small and medium businesses at 26%. This was backed by recent DTI data showing that micro and cottage businesses account for 88 percent of MSMEs. The total assets of a Micro, Small, and Medium Enterprise (MSME) were used to determine the establishment type of a business. This was set forth in Republic Act No. 6977, as modified (also known as the "Magna Carta for Micro, Small, and Medium Enterprises (MSMEs)"), which was originally known as the "Magna Carta for Small Enterprises." A

business with a total asset of not more than 3 million pesos were categorized under Micro/ Cottage Enterprises. (PNL Law, 2020)

Table 4. Demographic Profile of MSMEs

ITEM	DETAILS	FREQUENCY (N= 176)	%
Nature of Business	Wholesale & Retail	133	100%
Ownership Type	Sole Proprietorship	115	86%
	Partnership	6	5%
	Corporation	12	9%
			100%
Years in Business			
	0-11 months	17	13%
	1-5 years	60	45%
	6-10 years	21	16%
	11 years and above	35	26%
			100%
Establishment Type	Micro and Cottage	98	74%
	Small business	35	26%
			100%

Results on the Level of Entrepreneurial Orientation, Crisis Management, External Support and Linkages, Communication and Social Media and Business Resilience

The table below shows the descriptive statistics on the respondent's perception with the role of entrepreneurial orientation in making the business resilient. Enterprise owner has maintained control over what's happening in the business and received the highest

average score of 5.65 (SD = 0.58). A study from Moreno (2021) can support this. According to the results, entrepreneurial traits have a significant and strong link to enterprise resilience and can improve the competency of the business performance. Meanwhile asking for help from employees in restoring the operations got the lowest mean(SD=.63) highlighting that this was the least priority of the business owners in making the firm resilient.

Table 5

Descriptive Statistics of The Level of Entrepreneurial Orientation on Business Resilience

Questions	Composite Mean	Standard Deviation	Interpretation
Followed health protocols like sanitation, use of face masks, social distancing in the establishments, among others.	5.56	0.61	Extremely High
Maintained adequate number of staffs.	5.53	0.65	Extremely High
Maintained a sense of control about what happens to the business	5.65	0.58	Extremely High
Kept a stock of supplies and materials that can be used in times of restrictions.	5.43	0.63	Extremely High
Generated fund sources to revitalize the business operations.	5.58	0.65	Extremely High
Requested employees to cooperate in rebuilding the business.	3.33	0.63	Low
Prepared plans to see the weaknesses of the establishment.	5.56	0.8	Extremely High
Invested in healthcare insurance.	3.70	1.34	High
Invested in training for risky situations	5.39	1.37	Extremely High
COMPOSITE MEAN	**5.08**	**0.81**	**VERY HIGH**

The descriptive data on the respondents' perceptions on the role of crisis management in making the business disaster and pandemic proof are shown in Table 6. The highest mean of 5.59 and smallest spread-out data of (SD=.62) was obtained by having a strategy in place to deal with government compliance issues. Confirming this result were

the reports from Department of Trade and Industry's Fair Trade Enforcement Bureaus (DTI-FTEB) which stated that 94.7 percent of business firms and establishments follow the government's Minimum Health Protocols in National Capital Region (NCR). Meanwhile majority answered that they don't have any back up plan in place with the lowest mean of 3.92 and most spread-out data of (SD=1.83). Flaminiano et.al (2021) validated this when their study revealed that 74% of MSMEs did not have a business continuity plan, making it more difficult to function during the crisis.

Table 6.
Descriptive Statistics of The Level of Crisis Management on Business Resilience

Questions	Composite Mean	Standard Deviation	Interpretation
Had a long-term plan to strengthen the business if Covid-19 extends for months.	5.57	0.58	Extremely High
Had a plan to address government compliance issues.	5.59	0.62	Extremely High
Had a sound financial management plan.	5.47	0.75	Extremely High
Initiated strategies relative to marketing, supplies and operation of business to address Covid-19	5.57	0.69	Extremely High
Had a business continuity plan	3.92	1.83	High
Improvised when usual resources are not available.	5.53	.69	Extremely High
Had a workplace health and safety plan.	5.50	.81	Extremely High
Ensured that readiness is observed at all times.	5.50	.81	Extremely High
Encouraged all personnel to get insurance for future claims.	4.59	1.5	Very High
COMPOSITE MEAN	**5.25**	**0.58**	**Extremely High**

As seen in the following table, businesses which have built a concrete and strong relationship with their clients are supported and patronized during a crisis. It got the mean of 5.66 and the smallest spread out data of (SD=.51) and interpreted as Extremely High. This is similar to the study of Baveja et.al of Bain & Company Inc. (2021) wherein they learned that customers spent more money in a given period of time if they had a longer relationship with an online merchant. However, seeking help from experts regarding health protocols got the lowest mean of 4.89 and had the most spread out data(SD=1.66) which means that the owners are aware with the new normal in managing their businesses.

Table 7.

Descriptive Statistics of The Level of External Support and Linkages on Business Resilience

Questions	Composite Mean	Standard Deviation	Interpretation
Had a strong relationship with customers.	5.66	0.51	Extremely High
Sourced expert assistance concerning health protocols if needed.	4.89	1.17	Very High
Coordinated with local partners, emergency managers and public work officials to prepare for worst case scenarios	5.35	0.81	Extremely High
Kept a network of contacts with government agencies and NGOs.	5.34	0.86	Extremely High
Were well supported by the local community both in business and government.	5.43	0.82	Extremely High
Met with other businesses in working together to rebuild business activities.	5.01	1.02	Very High
Participated in talks or discussions about disasters, emergencies, and Covid-19	5.28	1	Extremely High
Developed strong relationship with baranggay personnel.	5.59	.76	Extremely High
COMPOSITE MEAN	**5.32**	**0.66**	**Extremely High**

Table 8 illustrates that obtaining relevant information about the Covid-19 pandemic's potential issues contribute the highest in achieving business resilience with a composite mean of 5.65 and smallest spread out of (SD=.51). Interestingly, utilizing social media to conduct business and communicate in different ways got the lowest mean of 5.03 and had the most spread out data (SD=1.38). This was in contrast with the study by Hidayat et al. (2020). It turns out that companies use social media to sell their products and services and maintain profitability and productivity in this new normal. Yadav and Jagtap (2020) also disagree and concluded that respondents care extensively using social media platforms for efficient and ongoing operations.

Table 8.
Descriptive Statistics of The Level of Communication and Social Media on Business Resilience

Questions	Composite Mean	Standard Deviation	Interpretation
Utilized social media as a tool to disseminate information.	5.55	0.86	Extremely High
Utilized technology in monitoring and assessing the extent of disasters, emergencies and Covid-19	5.58	0.84	Extremely High
Handled the communication channels of the business effectively.	5.63	0.78	Extremely High
Formulated quick decision-making protocols.	5.60	0.70	Extremely High
Get essential updates regarding impending issues of Covid-19 pandemic.	5.65	0.60	Extremely High
Utilized social media in making transactions and other forms of communication.	5.03	1.38	Very High
Allowed online transactions with suppliers and customers like bank transfer, use of digital money, etc	5.53	0.97	Extremely High
Utilized social media marketing to promote products or services.	5.51	1.03	Extremely High
COMPOSITE MEAN	**5.51**	**0.71**	**Extremely High**

Table 9 indicates the extent of business resiliency among MSME owners. The composite mean was 5.38, with an extremely high descriptive level. This means that MSME owners in Lipa Batangas, has been able to continue business as usual despite disruptions and they regard resiliency as an important aspect of their business. Leadership and culture got the highest mean and smallest data spread out (SD=.70) while sourcing out financial loans got the lowest mean of 4.89 (SD=1.30) The results are supported by the study of Sulastri (2020)

Table 9.

Descriptive Statistics of The Level of Business Resilience of MSMEs in Lipa Batangas

Questions	Composite Mean	Standard Deviation	Interpretation
During crisis, we still run our business as usual.	5.30	0.97	Extremely High
The sales we received still cope with the financial challenges of the business.	5.28	0.97	Extremely High
We will continue to run our business because a crisis is not something to be avoided but a challenge that must be faced.	5.35	0.98	Extremely High
The business is being attuned to marketing challenges and vulnerabilities.	5.42	0.77	Extremely High
The business can easily source out loans in any financial institutions.	4.89	1.3	Very High
It can create innovative ideas to adjust prices and sales.	5.37	0.91	Extremely High
The business establishment is change ready.	5.44	.90	Extremely High
Owners and managers can make a good business decision making.	5.64	.72	Extremely High
The leadership and culture of business is excellent.	5.71	.70	Extremely High
COMPOSITE MEAN	**5.38**	**0.71**	**Extremely High**

REGRESSION

Test of Hypotheses

Ho1. Entrepreneurial Orientation does not significantly predict business resilience.

The regression matrix illustrating the link between entrepreneurial orientation and business resilience is shown in Table below.

Table 10.

Effect of Entrepreneurial Orientation on Business Resilience

Model	Unstandardized Coefficients		t-value	p-value	Interpretation
	B	Std. Error			
1 (Constant)	2.721	.626	4.343	.000	
Entrepreneurial Orientation	.523	.123	4.260	.000	Significant
R^2 = .122	F-value = 18.149			p-value = .000	

a. Dependent Variable: Business Resilience

The findings revealed that entrepreneurial orientation (EO) had a significant effect on business resilience (β=0.523 p-value =.000). A 1-unit increase in EO result to a .523 increase in business resilience respectively and these were statistically significant at p-value < 0.05. Overall, about 12.2 % of the co variance of the dependent variable is accounted for by EO (R2=.122, F=.18.149 p <.05), according to the regression analysis. This indicated that the characteristics of business owners such as proactiveness and innovativeness have contributed so much to business resilience. Thus, rejecting Ho1. This

was backed up by the results of the study of Zighan et.al (2021) wherein entrepreneurial orientation has been demonstrated to help small and medium- sized businesses adjust and mobilize their resilience in the face of large changes and challenges. Entrepreneurial orientation, which was based on risk-taking, innovation, and proactivity, allows the development of new capabilities that protect the organization from various dangers. Edwinah & Eshegheri's findings in 2017 also implied that both innovativeness and proactiveness are linked to resilience and concluded that entrepreneurial orientation has a significant relationship to organizational resilience. Hidayat et.al (2020) also supported this when their research stated that resilience is strongly influenced by the business owner's entrepreneurial spirit which enable them to deal with a variety of scenarios.

H_{o2}. Crisis Management does not significantly predict business resilience.

The regression matrix illustrating the relationship between crisis management and business resilience is shown in Table 11.

Table 11

Effect of Crisis Management on Business Resilience

Model	Unstandardized Coefficients		t-value	p-value	Interpretation
	B	Std. Error			
1 (Constant)	2.247	.491	4.577	.000	
Crisis Management	.596	.093	6.415	.000	Significant
R^2 = .239	F-value = 41.151			p-value = .000	

a. Dependent Variable: Business Resilience

Crisis Management (CM) was found to have a significant effect on business

resilience (β =0.596 p-value =.000). A 1-unit increase in CM resulted to a .596 increase in business resilience and were statistically significant at p-value < 0.05. Thus, rejecting Ho3. According to the regression analysis, CM accounted for around 23.9 percent of the co variance of the dependent variable (R2=.239 F =.41.151 p<.05). Hence rejecting Ho2. The findings of Hidayat et.al (2020) corroborated as it showed that crisis management had a positive and significant impact on business resilience. The results are in line as well with previous research by Motoc (2020) and Munoz et al. (2019) who discovered that small businesses with good crisis preparation survive and recover better from crises. Lastly, in Salehi et.al (2022) analysis showed that the community-based crisis management variable has a positive and significant impact on people' resilience, with an impact factor of 0.37.

$H_{o3.}$ External Support and Linkages does not significantly predict business resilience.

Table 12.

Effect of External Support and Linkages on Business Resilience

Model	Unstandardized Coefficients		t-value	p-value	Interpretation
	B	Std. Error			
1 (Constant)	2.852	.453	6.300	.000	
External Support and Linkages	.475	.084	5.623	.000	Significant
R^2 = .194	F-value = 31.623			p-value = .000	

a. Dependent Variable: Business Resilience

Business Resilience was found to be significantly predicted by external support and linkages (β =.475, p-value= .000). Thus, rejecting Ho3. According to regression analysis, ESL accounts for approximately 19.4 percent of the co variance of business resilience ($R2$=.194, F =.31.623, p.<05). This alludes that the ability of a company to seek eternal help from community and government are essential for a resilient business. Abdalla and Ghadah (2021) supported the findings when their study confirmed the importance of external help and support offered to SMEs during the Covid 19 crisis to ensure their survival. Furthermore, government policies, non-governmental organization support contributed to the resilience of the businesses in the face of such a crisis. Adding to the evidence is research from Kluczka & Salamacha (2020) which proved that external assistance enables a business to deal with unanticipated obstacles, adapt more effectively to extreme conditions, and recover from misfortunes, environmental damage, and destabilizing state. Consequently, Carmen and Eriko revealed that in order for micro and small businesses to cope better with the disruption created by the COVID-19 epidemic, they must first demonstrate openness to production innovation and adaptation, as well as strong customer and community support.

$H_{o4.}$ Communication and social media do not significantly predict business resilience.

Table 13 shows the effect of communication and social media on business resilience.

Communication and social media significantly predict business resilience (β = .444, p-value= .000) Ho4 is therefore rejected. As per the regression analysis, CSM is responsible for approximately 19.4 percent of the business resilience' co variance ($R2$=.194 F =31.604 p<.05). This simply means that great communication and the usage of

social media during crises and unforeseen events should be stressed in order to be resilient in business. Yu et.al(2021) supported this findings when they concluded that with social media usage and advanced data analytics technology, MSMEs can generate new business ideas, leading to enhanced resilience to meet the challenges caused by COVID-19 or other unexpected or extraordinary circumstances, such as natural disasters and financial crisis. Another survey performed by the CEMS Global Alliance in Management Education, which includes the University of Sydney Business School found out that before the onset of the health crisis, resilience, empathy, and the capacity to communicate have become increasingly crucial. This study backs up the notion that flexible human skills like resilience, empathy, communication, and cultural intelligence are essential for multinational teams to thrive during times of crisis.

Table 13.

Effect of Communication and Social Media on Business Resilience

Table X. Effect of Communication and Social Media on Business Resilience

Model	Unstandardized Coefficients		t-value	p-value	Interpretation
	B	Std. Error			
1 (Constant)	2.932	.439	6.682	.000	
Communication and Social Media	.444	.079	5.622	.000	Significant
$R^2 = .194$	F-value = 31.604			p-value = .000	

a. Dependent Variable: Business Resilience

Results of Hierarchical Regression Analysis

Hierarchical multiple regression shows the results of moderation effects by analyzing establishment type. The significance of the change in r2, as well as the

interaction effect, helped to evaluate the findings of hierarchical regression analysis. It also includes the findings of a moderating effect analysis to investigate if establishment type influences MSMEs' business resilience in Lipa, Batangas.

$H_{o5.}$ MSMEs establishment type does not significantly moderate the relationship between the independent and dependent variables.

Table 15.

Moderating Role of Establishment type between Dependent and Independent Variables

Unstandardized Coefficients			t-value	p-value	Interpretation	R2 Change
Model	B	Std. Error				
1. (Constant)	5.378	.053	100.724	.000		
Crisis Management	.251	.091	2.755	.007	Significant	
Entrepreneurial Orientation	-.065	.083	-.779	.438	Not Significant	
External Support and Linkages	.101	.083	1.223	.223	Not Significant	
Communication and Social Media	.109	.089	1.230	.221	Not Significant	
R^2 = .272	F-value=11.934	p-value = .000				
2. (Constant)	5.367	.055	97.688	0.000		
Crisis Management	.229	.100	2.301	.023	Significant	
Entrepreneurial Orientation	-.067	.087	-.775	.440	Not Significant	
External Support and Linkages	.125	.090	1.392	.166	Not Significant	
Communication and Social Media	.122	.091	1.329	.186	Not Significant	
Int_1	-.017	.120	-.140	.889	Not Significant	.020
Int_2	-.005	.090	-.054	.957	Not Significant	
Int_3	.109	.108	1.007	.316	Not Significant	
Int_4	.027	.101	.270	.787	Not Significant	
Establishment type	-.012	.057	-.220	.826	Not Significant	
R^2 = .292	F-value=5.638	p-value = .000				

The model above shows the moderation matrix of all independent variables (entrepreneurial orientation, crisis management, external support and linkages and communication and social media) to the dependent variable (business resilience)

Model 1 in Table 15 demonstrated that when all variables are tested at once, only Crisis Management was the significant predictor of business resilience (p value<.05). Even when the moderator is added into the model, crisis management remain significant (p value<.05) with a β of .229.

Model 2 also shows that establishment type a low moderating power and that R2 change has a low influence based on interaction with business resilience (R2=.020 p-value=.000). Therefore, it does not moderate the relationship between independent and dependent variables and ho5 is accepted. This is in contrast with the data obtained by Licayan et.al (2020) where they identified that establishment type slightly moderates the relationship between independent and dependent variable

CONCLUSION

This study is conducted to identify the determinants of business resilience and introduce business continuity plan to MSMEs in Lipa Batangas.

The main purpose of this study was to determine if the independent variables (entrepreneurial orientation, crisis management, external support and linkages and communication and social media) have any effect on the dependent variable (business resilience). It also determined if the moderating variable (establishment type) moderates

the relationship between independent and dependent variable. The study findings achieved the following:

Majority of the respondents are Sole Proprietors which means that one or two persons own the business comprising 86% of the total respondents. 45% of these are operating for over 1-5 years or were established during the pandemic and 74% of the respondents are under Micro and Cottage businesses. This suggests that further studies involving partnership and corporation, and small and medium enterprises should be the priority in the next wave of studies involving MSMEs in the locality.

Table 16.

Summary of Hypotheses Testing

Hypotheses		Result
H_{o1}	Entrepreneurial Orientation does not significantly predicts business resilience.	Rejected
H_{o2}	Crisis Management does not significantly predict business resilience.	Rejected
H_{o3}	External Support and Linkages does not significantly predict business resilience.	Rejected
H_{o4}	Communication and social media does not significantly predict business resilience.	Rejected
H_{o5}	MSMEs establishment type does not significantly moderate the relationship between the independent and dependent variables.	Accepted

According to the findings, Entrepreneurial Orientation (EO) significantly predicts business resilience (BR) therefore rejecting H_o1. EO attained a 5.38 composite mean which was Extremely High. This indicated that the proactiveness and innovativeness of business owners had made their business resilient.

Moreover, Crisis Management (CM) was found to significantly predict business resilience. Thus, rejecting H_{o2}. CM received an Extremely High composite mean of 5.25 implying that enterprise owners gave importance to planning for disruptive events which made their businesses resilient.

In addition, results concluded that External Support and Linkages (ESL) was discovered to be a significant predictor of business resilience. Hence, H_{o3} is rejected. ESL earned an Extremely High composite mean of 5.32, suggesting that external assistance and connections are vital to be a resilient enterprise.

Furthermore, Communication and social media (CSM) significantly predict business resilience. As a result, H_{o4} is rejected. This just means that to be resilient in business, excellent communication, and use of social media during crisis and unexpected events should be prioritized.

Lastly, the relationship between the independent and dependent variables is not significantly moderated by MSMEs establishment type, therefore accepting H_o6.

RECOMMENDATION

The researcher suggests the following based on a thorough and significant analysis of the results:

To Department of Trade and Industry. Strengthen the Go Negosyo Program and Kapatid Mentor Me Project as results showed majority of the businesses in the MSME sectors are Sole Proprietors. They can launch other programs such as trainings and conducting seminars on getting their employees involved in the rehabilitation and operation of their businesses before, during and after a disruption as these got a low score on the descriptive analysis.

The study also confirmed the vital role of planning for unexpected circumstances thus the need for a business continuity plan. They are encouraged to at least have a backup plan for their human, physical and financial resources. BAU 360 would be a great tool for this.

It was also proven that external support and linkages affect business resilience. This external intervention helped owners in operating on a new normal according to the respondents. With this, MSME owners are also encouraged to join organizations or support a community to further boost their alliance with government entities and build a stronger customer base.

Similarly, data from the study showed communication and social media had its share in making the business resilient. It is important for a business to have a clear communication system when disruptions happen. Taking advantage of social media in marketing a product or service is highly advised since a study from Yadav and Jagtap (2022) exposed that social media is used to improve both the quality and quantity of the business operations.

To Government Institutions: Aid MSMEs in terms of financial assistance as results show there are enterprise owners who find it difficult to source out loans to any financial institutions.

Limitations

This research was carried out at Lipa City. As a result, future researcher could investigate business resilience of MSMEs in various parts of the Philippines. It could be done on a provincial or regional scale to fill in the gaps especially in ownership type and establishment type as the current study respondents were sole proprietors and operating under cottage and micro category. They can target corporations and those who are under small and medium businesses. Further exploration into the business resilience framework and may add other variables other than establishment type as this was proven to not moderate the relationship of independent and dependent variables. (Licayan et.al,2020) They can also investigate the behavior of consumers in the post pandemic time to identify if there are changes into how consumers shop or if it could also a predictor of business resilience

Action Plan

To accomplish the eighth Sustainable Development Goal (SDG), which is to promote inclusive and sustainable economic growth, job creation, and decent work for all people, the researcher proposed the introduction of a mobile application for business continuity management so that MSME owners can build business resilience in the face of natural disasters and unforeseen crises.

This is called BAU 360,an all-in-one mobile application for MSMEs which main feature was business continuity management plan. It would be a great tool in helping MSMEs withstand any disruptions or crises that might come their way. Based on the results of the study, all 4 independent variables namely entrepreneurial orientation, crisis management, external support and linkages and communication and social media are all vital to achieve resiliency against disruptive events. This means that these were all be incorporated into BAU 360. This app was patterned from Asian Disaster Reduction Center BCM Booklet for Small and Medium Sized Enterprise. The user interface which can be seen on Appendix F was divided into different sections : emergency contacts, checklist, risk assessment, key resources, protocols and inventory and need a hand.

Parts of BAU360

Emergency Contacts: This presents the list of the people and their contact numbers who can be called in case of a disaster or emergency. MSMEs are encouraged to input all the contact information of their employees, stakeholders, barangay officials, City Disaster Risk Reduction Office, nearest police station and Bureau of Fire Protection unit.

Checklist: This section is dedicated for the emergency tool kit that the enterprise might need during disasters and emergencies such as covid care kit, emergency box, tools and supplies. MSMEs are required to input all the kits and tools for emergency —
the quantity and its category.

Risk Assessment: This section includes identifying internal and external threats as well as the controls in place or necessary to reduce exposure. With this feature, they would know which are the most hazardous for the business as it is required to put the risk rating. It also has the control section where MSMEs encode the step-by-step process in mitigating the risk.

Key Resources: This section has the major resources that the business needs in order to continue operations. MSMEs should type in the number of manpower they are currently employing as well as the physical resources or the raw materials, tools and equipment needed to operate.

Protocols: This defines what to do before, during and after an unexpected disruption.

Inventory: This lists all the products or services of the enterprise with their corresponding suppliers, location and category.

Professional Services: This lists all the possible help that MSMEs can utilize. This application serves as a link for business owners and other professional and government services. From FAQs on the requirements needed in a government office for a certain permit to all professional help from professional and legal consultant.

Lastly, DTI could be the official partner of BAU 360 to hold special trainings regarding the use and how the BCM plan works.

Project Action
Plan Template

Title of the Project: BAU 360: A Business Continuity Mobile Application		
Goals/Objectives: Develop a mobile application that would assist MSME owners in managing their business during d pandemic		
Time Frame: September 2022- May 2023	Unit/Institution Responsible for the project: MBA Students	Stakeholders: MSMEs, MBA Studen
Project Team: MBA Students / BAU Project Team		

ACTION PLAN:

Activities What Will Be Done?	In-Charge Who Will Do It?	Timeline By When? (Day/Month)	Resources Resources Available Resources Needed (financial, human, political & other)	Co
Step 1: Analysis and Planning. This includes reviewing the results of the study to know which aspects to include and disregard in the development of the mobile application.	BAU Project Team	September 2022	BAU Project Team (consists of MBA Students for Implementation) Results of the Study (Determinants of Business Resilience) Glideapp.io (Mobile Application Developer)	1.

Step 2: User interface design. Multi OS Compatibility Visual Design Information Architecture	BAU Project Team	September 2022	BAU Project Team Hardware: laptop Software: programming language	BA M!
Step 3: Program Design	Expert/ System Analyst	October 2022	A. Hardware: Laptop	BA Sy
Step 4: Development of Mobile Application	Programmer under the provision of system analyst	October 2022- May 2023	Mobile Programmer Hardware: Laptop SMS Gateway (for testing) Simcard Software: Mobile Programming Language	BA De Pro
Step 5: Testing	End users Testing (MSME owners)	May 2022	End Users Hardware Mobile Device (different OS)	BA En
Step 6: Debugging and Fine Tuning	Development Team / Programmer	May 2022 (will be done in parallel with testing)	Hardware: Laptop Software: Programming Language	BA De Pro

Evidence Of Success (How will you know that you are making progress? What are your benchmarks?)
- Number of Downloads
- Percentage of new users who completed on boarding (completed registration)
- Number of actions and end sessions.

Evaluation Process (How will you determine that your goal has been reached? What are your measures?)
- User Adoption
- High usage or time spent in application

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