

Mediating Effects of Industry in the relationship of Presence of Business Continuity Plans and Effects of COVID-19 to Businesses in Ilocos Norte, Philippines

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Abstract

The study investigates the effects of pandemic brought about by Covid-19 to Ilocos businesses and establishments. The participants of the study were the owners and employees of businesses in Ilocos Norte and they were selected using a convenience sampling technique. The study employed a quantitative research design and a causal research approach to measure the relationship of presence of a business continuity plan and perceived impact of Covid-19 and the mediating effect of type of industry. Using descriptive statistics, the findings divulged that many establishments created a business continuity plan in response to the current pandemic. It is also revealed that most of the businesses are affected extensively with the pandemic. The Effects of the pandemic include uncertainties, the decline in productivity, demand, and sales. Using simple structural equation modeling, the findings revealed that there is a positive relationship between the presence of the business continuity plan and the effect of the pandemic. However, as regards the mediating effect of the type of industry, there was no established effect. Implications, conclusions, and recommendations were also provided in the study.

Key Words: business continuity plans; COVID-19; economic effect

Introduction

With the support of micro, nano, and medium businesses, the Philippines has a rising economy (MSMEs). MSMEs account for more than 99 percent of all businesses in the world. Small businesses still lead in terms of workers, responsible for over 60% of all employees (3.4 million). MSMEs' economic efficiency has been subdued, according to PIDS industrial sector analyst Aldaba R. (2015), as shown by low labour output and value-added contribution to manufacturing. The province of Ilocos Norte, in particular, is largely an agricultural province. Still, it has been a sanctuary for multinational and local corporations such as Coca-Cola Bottlers Phils., Ilocos Plant., Inc., San Miguel Beer, Honda, Nissan, Venvi Group of Firms, Shell, Petron, and Flying V Gasoline Stations, as well as Magnolia Corporation, for many years. Meat, retail, travel and leisure, consumer welfare, financial services, and education are the most important sectors. Ilocos Norte is located in the archipelago's northernmost region. It has 21 municipalities and two towns, and because of its strategic position, local and international investors consider Ilocos Norte to be a safe investment haven. Laoag City is the seat. In terms of economic prosperity, it is now regarded as a sleeping giant. However, the Philippines' economy, in general, and Ilocos Norte, in particular, are being impacted by the global pandemic that every nation is currently witnessing.

The Covid-19 pandemic, according to the United Nations Development Programme (2020), is much more than a health emergency. It has a detrimental impact on cultures and economies.

The Philippines was under a state of emergency and several forms of community quarantine. They all refer to a condition of segregation or limited access imposed as a protective precaution, but under a general population quarantine, critical and low-risk individuals may now fly and pass about the community. A community lockdown has two benefits: it slows the transmission of the infection, limiting the amount of ill people and allowing the health department enough resources to help those who are sick. Lockdowns, on the other side, have affected the country by preventing individuals from engaging in entrepreneurial activities and mobility that might otherwise exist. The prevalent disease COVID-19 was the cause of the increased population quarantine and lockout. COVID-19 has been deemed a pandemic by the World Health Organization because it is spreading so quickly in many big cities.

Influenza pandemics have existed throughout history, including three occasions in the twentieth century (1918, 1957, and 1968). And it's happening once more with the spread of COVID-19. COVID-19 was discovered in Wuhan, China, and quickly distributed across the globe. SARS-CoV-2, whose main reservoir is bats, causes a strongly transmissible and pathogenic viral infection. There are still no scientifically accepted antiviral medications or vaccinations for human use, making it much more dangerous than any other recognized illness (UNDP,2020).

President Rodrigo Duterte announced an intensified community quarantine in Luzon on March 15, 2020, with the primary goal of containing the virus's dissemination, which he extended until May 15, 2020. (Aljazeera, 2020). The notion of weighing the gains and risks of a lockout is central to the debate about whether the government can enact one. Implementing lockout and halting human activity at the height of the pandemic has a significant advantage in terms of halting contagion and preventing further strain on an often overburdened health sector. This would offer the government and the health-care system plenty of time to get things under control. Simultaneously, the financial burden of lockout or community quarantine grows over time. Maintaining a lockdown for a prolonged time comes at a higher expense to society: businesses could go bankrupt, people will lose their jobs, and eventually, demand and economic welfare may plummet.

According to the Philippine Daily Inquirer, the Province of Ilocos Norte immediately preceded the President's announcement of community quarantine on March 17, 2020. Schools and non-essential businesses are closed, and residents are required to remain at home until the lockout is removed. There were only two reported reports of the virus as of the writing of this report, which was in the second week of June. All of them were released from the hospital. The province's authorities have been closely watching people's movements and whereabouts. Individuals were issued barangay passes in order to impose limits on people's activities. To ensure that the province has limited and regulated cases, disinfecting and other precautionary steps is introduced.

The economic effects of the COVID-19 pandemic in Ilocos Norte is investigated in this research article. It looks at the impact on firms and specific industries, as well as the supply chain and the clients of these companies. The aim of this analysis was to determine the value of developing business continuity plans and to examine the devastating impact of pandemics on

companies in Ilocos Norte, Philippines. Its primary audience was business owners, with the aim of instilling in them the value of being equipped to deal with certain circumstances. Assessing and assessing the ramifications and impacts of the Covid-19 crisis on communities and economies is critical for informing and tailoring our local government unit's and partners' approaches to the crisis and ensuring everyone's wellbeing (UNDP, 2020).

Research Framework and Problems

Business Effects of Pandemics

Infectious disease pandemics such as HIV, H1N1, and SARS can quickly spread to new locations and countries. That will jeopardize regional and economic security. The 1918 influenza pandemic is a prime example. Large-scale vaccines may reduce the economic effects of a pandemic like the one that struck in 1918. The estimated economy of an influenza pandemic in the United States ranged from \$71.3 to \$166.5 billion dollars, with the loss of life accounting for the largest portion of the economic damages (Maltzer et al., 1999). It implies that death has the highest economic expense, and that measures that reduce the greater amount of deaths would provide the highest economic returns. Increased healthcare costs by patients and funders, as well as increased workloads for healthcare staff, are two examples of economic effects caused by pandemics (Woo, 2015).

Indirect consequences, on the other hand, involve a reduced labor pool and lower efficiency as a result of higher absenteeism and tardiness. It also has an effect on domestic and foreign tourism, as well as decreased public activities including festivals, sporting events, and celebrations. Furthermore, certain employees on paid leave decreased their company's efficiency (Woo, 2015). There is also a decrease in business spending as a result of heightened risk and instability, resulting in surplus energy (Fan, 2003). People will be more likely to stay at home, resulting in lower investment and a negative impact on industries. However, James and Sargent (2006) contend that data from recent epidemics and pandemics shows that discretionary funding such as tourism and transportation is cut. However, a study by Keogh-Brown and Smith (2008) refuted James and Sargent (2006)'s assertion, believing that the results extended beyond air travel and lodging. According to their claims, a report by Garrett (2007) found that when the 1918 influenza epidemic hit, industries in a certain area of the United States decreased by 40-70 percent, the retail food sector shrank by 1/3, and the only company that saw an uptick in operation was the pharmacy shop. In another region of the United States, coal mines and other sectors saw a 50% drop in demand.

SARS in 2003 and Ebola in 2013 and 2015 have had an effect on China's and West Africa's markets and civil order. There were fatalities and illnesses as a result of these pandemics. Ebola has lowered the standard of living for households and undermined basic resources like schooling, tourism, and transportation (Nabarro and Wannous, 2016). Qui et al. (2017), on the other hand, categorized the economic effects of pandemics into three categories. Direct costs, long-term obligations, and indirect costs are also included. Hospitalization and treatment are two examples of direct expenses. The lack of profits for others who have died is a long-term responsibility. And indirect costs include anything that leads to a drop in GDP, such as the disappearance of the air transportation industry.

Statement of the Problem

Generally, this study determined the economic impact of COVID-19 in the province of Ilocos Norte. Specifically, it answered the following questions:

1. When is a business continuity plan prepared to address severe disruption on day-to-day operations:
 - i. Before pandemic;
 - ii. During the pandemic;
 - iii. In the process of preparing;
 - iv. 6-12 months after the pandemic
 - v. Will not prepare any business continuity plan?
2. What is the impact of the COVID-19 pandemic on business operations?
3. What are the effects of the pandemic on the sales and operations of the company?
4. Is there a mediating effect of the type of industry between the presence of continuity plan and perceived economic impact of Covid-19?

Figure 1

Research Framework

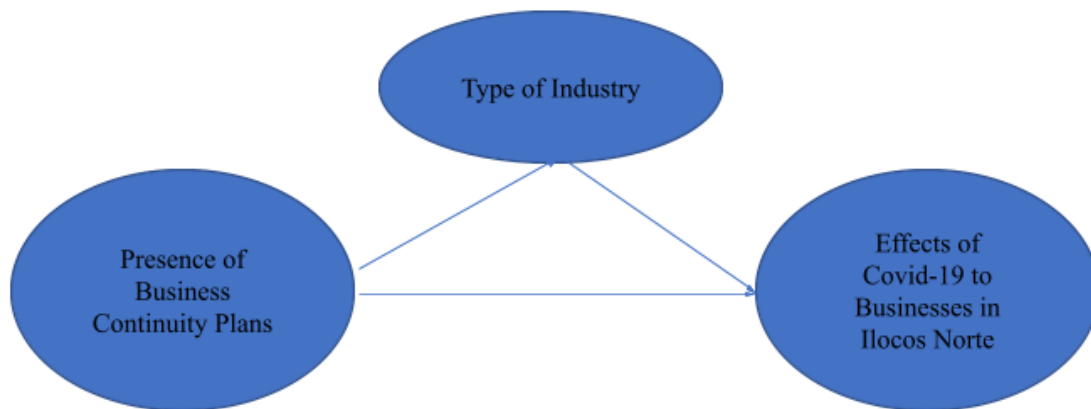


Figure 1 discusses the research framework of the study. The covariate or the independent variable is the presence of the business continuity plan of businesses in Ilocos Norte. A business continuity plan is a contingency plan that will prevent the extensive effects of disasters and recover from potential threats to a firm. The plan ensures that people and assets are protected by calamities or pandemics and can function quickly in the event of these threats. The mediating factor is the type of industry of the companies. The industry may be food, retail, travel, and tourism consumer health, financial services, and education. Lastly, the dependent variable is the effects of Covid-19 to businesses in Ilocos Norte.

Propositions

H1. There is a relationship between the business continuity plan preparation and the effects of Covid-19 to businesses.

H2. There is a mediating effect of the type of industry to the relationship of preparation of business continuity plan and effects of Covid-19 to businesses in Ilocos Norte.

Methodology***Participants***

The study respondents were selected using a convenience sampling technique, and they were the residents of Ilocos Norte who either work or have their own business. Using the Sample size calculator by Raosoft, with a 5% margin of error and level of confidence at 95% and a total population of 394,000 (PSA,2015), the total sample size is 384 respondents were computed. Particularly, the participants were the owners or employees of businesses situated in Ilocos Norte. Out of 500 survey questionnaires floated and 384 respondents required, 400 were answered completely and correctly by the respondents, an 80% response rate. The questionnaires' distribution was done on April 24, and the answered instruments were retrieved on April 30, 2019. The researcher used the Google Forms to distribute questionnaires since there was a prohibition of face-to-face interviews because of the lockdown.

Table 1 revealed that as to industry, the five well-represented industries for this study are travel and tourism (14%), education (13.5%), consumer health (12.5%), financial services (11.3%), and consumer foodservice (11%). On the other hand, the participants are mostly from the operations department (26.8%), sales (17.3%), and general management (13.5%). They are mostly the owners of businesses (37.5%) or managers (26.8%).

Table 1*Demographic Profile*

	Level	Count	Total	Proportion
Industry	Education	54	400	0.135
	Financial Services	45	400	0.113
	Travel and Tourism	56	400	0.140
	Consumer Health	50	400	0.125
	Automotive	33	400	0.083
	Consumer Food Service	44	400	0.110
	Household essentials	23	400	0.058
	Advertising	22	400	0.055
	Utilities	15	400	0.038
	Others	28	400	0.070
Area	Operations	107	400	0.268
	Sales	69	400	0.173
	General Management	54	400	0.135
	Finance	47	400	0.118
	Consumer Insights	45	400	0.113
	Marketing	34	400	0.085
	Others	44	400	0.110
Position	Owner	150	400	0.375
	Manager	107	400	0.268
	Director/Supervisor	55	400	0.138
	Analyst/ Associate	32	400	0.080
	Employee	56	400	0.140

Research Instrument

The research instrument utilized in the study was a questionnaire. There are 2 parts of the questionnaire. For the first part, the organizational profile; and the second part, the economic impact of COVID-19. The demographic profile consisted of industry, area, or specific function in the employee's business and position. On the other hand, the questions on the impact of Covid-19 was adopted in the questionnaires of International Trade Center, Globallinker, Euromonitor International.

Table 2*Reliability Analysis*

Scale Reliability Statistics	
	Cronbach's α
scale	0.727

The reliability of the questionnaire was also tested using the reliability analysis of Jamovi. To test this, the questionnaire was floated to 30 respondent business owners from Metro Manila. All the items in the questionnaire got a Cronbach Alpha of more than .70. In table 2 results revealed that overall, it satisfied the criterion for reliability which is equal to .73. The values of the composite reliability (CR) and Cronbach's alpha (CA) must be equal to or greater than 0.7 to reflect good reliability (Nunnally, 1978; Fornell & Larcker, 1981; Nunnally & Bernstein, 1994).

Data Analysis

The researcher used descriptive statistics in narrating the results of the study. Mostly the items were presented using frequency and percentages. On the other hand, the researcher attempted to measure the relationship of companies having a business continuity plan and the perceived impact of Covid-19 on their businesses with the mediating factor of the type of industry, using simple structural equation modeling. A simple SEM is a multivariate statistical *analysis* technique that is used to analyze *structural* relationships. This technique combines factor *analysis* and multiple regression *analysis*, and it is used to analyze the *structural* relationship between measured variables and latent constructs (D. Kaplan, 2001). Moreover, GLM Mediation analysis was also utilized to test the model further. GLM mediation model estimates simple, multiple, and conditional mediation models with maximum likelihood regression.

Results

When is a business continuity plan prepared to address severe disruption on day-to-day operations:

- i. *Before pandemic;*
- ii. *During the pandemic;*
- iii. *In the process of preparing;*
- iv. *6-12 months after the pandemic*
- v. *Will not prepare any business continuity plan?*

Table 3*Presence of Business Continuity Plan*

	Level	Count	Total	Proportion
Response	My company had a business continuity plan prior to the pandemic	42	400	0.105
	My company had a business continuity plan in response to the pandemic	174	400	0.436
	My company is in the process of creating a business continuity plan	54	400	0.135
	My company plans to develop a business continuity plan in the next 12 months.	21	400	0.053
	My company does not have a continuity plan with no plans to develop one.	15	400	0.038
	Not Sure	93	400	0.233

Table 3 revealed the presence of a business continuity plan in the company. A business continuity plan is a process involved in creating a system of prevention and recovery from potential threats to a company (Investopedia, 2019). According to the survey, 179 or almost half of the respondents said that they just created a business continuity plan in response to the pandemic. Almost a quarter of 93 respondents) claimed that they are not sure whether their company has a business continuity plan or none. Fifty-four respondents (13.5%) said that they are creating a business continuity plan, and only 10.5% said that they have one before the pandemic.

*What is the impact of the COVID-19 pandemic to business operations?***Table 4***Perceived Impact of COVID-19*

	Level	Count	Total	Proportion
Response	No impact	3	400	0.008
	Slight Impact	36	400	0.090
	Moderate Impact	114	400	0.286
	Extensive Impact	247	400	0.617

Based on Table 4, 247 respondents (61.7%) have said that Covid-19 has an extensive impact on their businesses, while 114 (28.6%) have said that the pandemic has a moderate effect on their businesses. The table also revealed that 36 (9%) have assessed that it has a slight impact on their companies.

What are the effects of the pandemic to sales and operations of the company?

Table 5

Effects of COVID-19 to Businesses

Response	Level	Count	Total	Proportion
Increasing uncertainty and not having enough information to make business decisions.		84	400	0.211
Shift in sales channel mix to focus more on online selling models.		69	400	0.173
Complete closure of business..		30	400	0.075
Reduced employee productivity..		135	400	0.338
Drop in my company revenues.		129	400	0.323

*Multiple responses

* Sales decline is the number of units sold whereas in company revenues, there is decline in peso value of sales (maybe due to discounts and/or number of units sold decreased)

It can be deduced from Table 6 that companies anticipate that the biggest effect of COVID-19 to their business is reduced employee productivity (135 or 33.8%) and drop-in company revenues (129 or 32.3%). Moreover, 84 (21.1%) respondents said that they shifted in sales channel mix and focus more on online selling models.

Is there a mediating effect of the type of industry between the presence of continuity plan and perceived economic impact of Covid-19?

Table 7

Mediation Results

Mediation Estimates					
Effect	Label	Estimate	SE	Z	p
Indirect	a × b	0.0144	0.109	0.132	0.895
Direct	c	0.5291	0.250	2.120	0.034
Total	c + a × b	0.5435	0.225	2.417	0.016

Path Estimates							
		Label	Estimate	SE	Z	p	
Business Continuity Plan	→	Industry	a	-0.4130	0.247	-1.673	0.094
Industry	→	Impact of Covid	b	-0.0349	0.263	-0.133	0.894
Business Continuity Plan	→	Impact of Covid	c	0.5291	0.250	2.120	0.034

Table 7 presents the model for a mediating effect of type of industry significant test. The path between the presence of a business continuity plan and the mediator, type of industry has a p-value of more than .05, which means that there is no mediating effect. However, the path between the presence of continuity plan and perceived impact of Covid-19 has a p-value of less than .05 which means that the two variables are statistically significant.

Table 7.1 with the use of GLM Mediation Analysis further revealed no mediating effect of the three variables, type of industry, presence of business continuity plan, and perceived impact of COVID-19 (p values = 0.895, 0.094, and 0.894). However, it is further confirmed that their adoption of supply chain management strategies and the profitability of manufacturing companies are statistically significant (p value=0.021).

Table 7.1

GLM Mediation Analysis

Indirect and Total Effects								
Type	Effect	Estimate	SE	95% C.I. (a)		β	z	p
				Lower	Upper			
Indirect	Business Continuity Plan \Rightarrow Industry \Rightarrow Impact of Covid	0.0144	0.109	-0.198 ₉	0.2278	0.0152	0.132	0.89 ₅
Component	Business Continuity Plan \Rightarrow Industry	-0.413 ₀	0.247	-0.897 ₀	0.070 ₉	-0.434 ₉	-1.67 ₃	0.09 ₄
	Industry \Rightarrow Impact of Covid	-0.034 ₉	0.26 ₃	-0.549 ₈	0.480 ₀	-0.03 ₄₉	-0.13 ₃	0.89 ₄
Direct	Business Continuity Plan \Rightarrow Impact of Covid	0.5291	0.25 ₀	0.040 ₀	1.0182	0.557 ₀	2.120	0.03 ₄
Total	Business Continuity Plan \Rightarrow Impact of Covid	0.5435	0.23 ₅	0.0831	1.003 ₈	0.5722	2.314	0.021

Note. Confidence intervals computed with method: Standard (Delta method)
 Note. Betas are completely standardized effect sizes

Discussions

Pandemics result in a large number of fatalities and uncertainty. Many companies have been tense as a result of the current pandemic, particularly after the government declared complete lockdowns. Businesses have been thrown off balance, and several customers have been left stranded. The influence of COVID-19 was assumed to be unfavorable in the analysis since the effect or impact was both unfavorable based on the responses of the business owners. In reaction to the pandemic, the majority of companies have just recently developed corporate continuity strategies. They simply relocated as the pandemic arrived on their doorstep. Many respondents say that they are unsure if businesses in Ilocos Norte have business continuity plans. The trick to that the chances of this pandemic, or any other crisis that can strike the company, is to be prepared. A business continuity strategy is an opportunity for companies to prepare for pandemics like Covid-

19 and having a plan in effect can enable establishments rebound when unforeseen setbacks arise, such as the Covid-19.

The majority of businesses in Ilocos Norte have stated that the pandemic has had a significant effect on their operations. COVID-19 has had a number of negative impacts on companies in Ilocos Norte, including decreased staff morale, revenue declines, decreased market demand, and increased uncertainty. Any enterprises have even shut down. Woo (2015), Fan (2003), James and Sargent (2006), and Keogh-Brown and Smith (2015) all found similar findings (2008). The findings of these research revealed that pandemics had an effect on the country's population, companies, and workers in particular.

Different establishments in Ilocos Norte are responding to the pandemic in different ways. Many companies have a "modern standard" scheme in their workplaces, based on IATF and other government agencies' protocols in reaction to the outbreak, by offering safety goods such as face masks and hand sanitizers. Furthermore, businesses have daily health tests for their workers as well as health records. A "fresh standard" that is rare among Ilocos Norte companies, according to follow-up interviews with company owners, is the Work-from-Home system. The concept has also been applied in other nations, but we are just now seeing pandemics in Ilocos Norte. Prior to the pandemic, businesses in Ilocos Norte did not have a work-from-home policy. Businesses, on the other hand, need staff to testify in person. Since this arrangement is new to Ilocos company owners, it was unclear if workers were more active or not. Business owners want to know whether their performances have improved, decreased, or remained unchanged. When questioned whether their morale improved or declined, the workers gave mixed responses. However, according to some of the respondents' chats and tweets, their morale improved as they returned to their workplaces. Many of those questioned, for example, stated that many of their assignments were completed in less time than while they were at work.

Finally, the existence of a corporate continuity strategy and the pandemic's perceived effects was statistically important, according to the report. This is not to say that anyone who planned serious business continuity strategies prior to or after the pandemic were immune to its consequences. Nonetheless, they became more educated and flexible in dealing with the current standard. One of the company owners consulted, for example, stated that he had a risk control and continuity strategy in effect prior to the pandemic. Employees became informed of the steps to take when a certain interruption in activities was caused by manmade or natural calamities, he added, and this continuity strategy is often addressed during their strategic planning session. As a result, when the pandemic hit, they became more robust and adapted to the crisis more quickly than most companies. They quickly adjusted to the current circumstance and were prepared to weather the pandemic. Furthermore, companies who have comprehensive corporate continuity strategies will manage and rebound quicker in a crisis. They said that their business continuity strategies had helped them prepare for and predict pandemics. The owners and their staff are well positioned to deal with Covid-19's consequences. It's also worth noting that the nature of the business isn't a mediating force in the two's friendship. This ensures that, regardless of the market, the preparedness of the establishments and the thoroughness of the corporate continuity policies are critical in mitigating the consequences of the pandemic.

Management Implications and Further Research

This study showed us that being prepared is necessary for businesses. Regardless of the market conditions, we have to serve the customers. As owners of establishments, they should quickly adapt to a crisis and they should spend time making plans for events they hope will never happen. A business continuity plan outlines the steps crucial for businesses to operate in certain crises such as the pandemic. The study implied that it is very important for business owners to come up with a contingency plan. The process itself can highlight weaknesses a company can correct long before facing crises and urgent situations. The study divulged that not all businesses in Ilocos Norte have prepared continuity plans, most of them have just prepared when the crisis strike. This reactive attitude only heightens the negative effects of the pandemic on the economy in general.

A good future research opportunity that researchers can do, is to check the productivity of physically reporting to the office as compared to the work-from-home scheme. This will determine if there are some positions in the company that is not necessary for physical reporting. This would mean studying the cost and benefits of the two.

Limitations of the Research

There are several limitations of the research that may be a good future research opportunity as well. One is that this research could not capture the difference between the actions and responses of those businesses who had a business continuity plan before the pandemic, during the pandemic, and 6-12 months after the pandemic. Moreover, another limitation of the research is that it did not capture the difference between the effect on those who had business continuity plans before the pandemic, during the pandemic, and 6-12 months after the pandemic. The research was conducted two months after the enhanced community lockdown, therefore good research follows up should be conducted one to two years to see the impact of Covid-19.

Conclusions and Recommendations

A pandemic affects the business negatively. It causes uncertainties and risks among owners and employees, reduced productivity, a decline in demand and sales, and additional costs for the business. Covid-19 changed the world and many establishments were caught off guard. The worst-case scenario is the business might foreclose and file bankruptcy. To mitigate the effects of a pandemic, every business should come up with a business continuity plan. Further readings have brought the researcher to the conclusion that a good business continuity plan has the following components:

1. Business Continuity plan: this section would give specific objectives for specific crises the business might face.
2. Recovery Teams: People responsible for contingency plans such as the president/owner of the company and committee on disaster preparedness.
3. Disaster response procedure.
4. Specific steps that need to be taken in the event of a disaster
5. Technology

6. Backup locations and physical assets.
7. Lines of communication.

It is necessary also to have a yearly updating of the continuity plan to come up with more up-to-date responses and recommendations.

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