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Digital Innovations in MSMEs during Economic Disruptions: Experiences and Challenges of Young Entrepreneurs

Lavinia Javier Cueto [1], April Faith Deleon Frisnedi [2], Reynaldo Baculio Collera [3,4], Kenneth Ian Talosig Batac [5,*] and Casper Boongaling Agaton [6,*]

1 Division of Calapan City, Department of Education, Parang National High School, Calapan City 5200, Philippines; lavinia.cueto@deped.gov.ph
2 College of Business Administration, Pamantasang Lungsod ng Muntinlupa, Muntinlupa 1776, Philippines; aprilfaithfrisnedi@plmun.edu.ph
3 Center for Human Development, University of Science and Technology of Southern Philippines, Cagayan de Oro City 9000, Philippines; reynaldo.collera@deped.gov.ph
4 Division of Cagayan de Oro City, Department of Education, Brgy, Lumbia National High School, Lumbia, Cagayan de Oro City 9000, Philippines
5 Department of Science Education, Br. Andrew Gonzalez FSC College of Education, De La Salle University, Manila 0922, Philippines
6 Department of Community and Environmental Resource Planning, College of Human Ecology, University of the Philippines Los Baños, Los Baños 4031, Philippines
* Correspondence: kenneth_batac@dlsu.edu.ph (K.I.T.B.); cbagaton@up.edu.ph (C.B.A.)

Abstract: The spike in COVID-19 cases all over the world poses a massive impact on various sectors of society. The global economy is no exception, for it has been severely affected by the unprecedented public health crisis leading businesspeople to shutdown commercial establishments and dramatically shifting businesses into digital platforms. Immense challenges brought by the pandemic have turned into great opportunities among entrepreneurs from different parts of the globe. In pursuit of the recovery path, they considered digital tools to be instrumental to surviving the crisis and even thriving in the long term. This study explores drivers and barriers to digital innovations in micro, small, and medium enterprises (MSMEs) during economic disruptions from the perspective of Filipino young entrepreneurs. Researchers employed a qualitative method for the conduct of in-depth interviews with 46 online entrepreneurs in the Philippines and transcribed them for Inductive Content Analysis to generate themes. Results found the adverse effects of the pandemic, which reinforce entrepreneurial innovations of shifting businesses to digital platforms, categorized into intrinsic (e.g., personal and professional growth) and extrinsic (e.g., mobility restrictions, market conditions, and household economic status) motivations. Participants described the barriers to digital entrepreneurship, including skills needed for doing online business, market-related problems in digital platforms, availability of quality internet infrastructures, and the pandemic restrictions. The findings of this study contribute to the entrepreneurship literature and areas for an empirical investigation to develop programs that support entrepreneurs during economic disruptions. This would serve as a guidepost in the formulation of government policies and strategies for economic recovery through digital entrepreneurship while considering the perspectives of young entrepreneurs. This further recommends future related researches to empower entrepreneurs, particularly those in the developing economies during the pandemic and beyond.

Keywords: digital entrepreneurship; economic disruption; innovation; pandemic; MSMEs; young entrepreneurs

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1. Introduction

The COVID-19 pandemic has brought drastic disruptions in every sector of society. According to the World Health Organization (WHO), there have been over 255 million

confirmed cases of COVID-19 globally, including 5 million deaths as of 17 November 2021 (WHO 2021). To prevent the spread of the virus, various governments imposed several societal and economic restrictions that limited the mobility and physical interactions of the people. The reduction of face-to-face contact abruptly increased the shift of societal and economic activities into digital platforms, including digital entrepreneurship (Dannenberg et al. 2020).

In recent years, several studies argued about circumstances and reasons that facilitate the digital transformation of businesses and public policies that support this phenomenon given its impacts on job creation and economic growth (Sahut et al. 2019). Among the identified enablers are the technologies including social media, open educational resources, crowdsourcing, 3D printing, digital imaging, and data mining, which empower young entrepreneurs in reducing the barriers between invention and the creation of a new venture (Steininger 2019). Another enabler is the COVID-19 pandemic which changed the consumers' habits and organizations' innovation programs leading to accelerated digital transformation of micro-, small, and medium enterprises (MSMEs) as well as large firms (Gavrila Gavrila and De Lucas Ancillo 2021; del Olmo-García et al. 2020).

With the lockdowns becoming the new normal, businesses and consumers increasingly shift to digital platforms, providing and purchasing more goods and services online, and increasing e-commerce's share of global retail sales from 14% in 2019 to 18% in 2020 and expected to reach 22% by 2024 (UNCTAD 2021; Coppola 2021). This economic disruption has a polarizing effect on both large firms and MSMEs: some enterprises experienced failures and permanent closure of operations; others demonstrated resilience, enabling them to adapt their operations and cope up with the crisis. Several critical factors in the internal and external business environments relate to the resilient MSMEs' successes such as financial literacy, savings culture, and technology adaption. On the other hand, unsuccessful MSMEs experienced financial challenges and a lack of online presence (Igbinakhase 2021). The successes of MSMEs can be one of three paths: those with a high level of digital maturity accelerate the transition toward digitalized firms. Those experiencing liquidity issues but a low level of digital maturity digitalize the sales operations only. Lastly, those that have very limited digital literacy find support from partners with excellent digital capabilities (Priyono et al. 2020).

Since MSMEs constitute the backbone of the economy in many developed and developing countries, more research is needed to discuss the sustainable development of MSMEs in the globalized and digitalized world (Mukhoryanova et al. 2021). Recent studies analyzed the digitization of MSMEs in different sectors and territories. For instance, Muhamad et al. (2021) conducted an online survey among industrial sectors (services, retail, manufacturing, and tourism) in Malaysia and presented a significant increase in digital use by enterprises during the pandemic in contrast to the pre-pandemic situation. Another study in the manufacturing sector found that the importance of digital technology during the pandemic has gained customer satisfaction in the industries, hence, the various ways in solving the pandemic problem in the customer find confidence in the solution in the digital technology (Mohapatra et al. 2021). In the European Agri-Food Cooperative Sector, Jorge-Vázquez et al. (2021) identified that the digitalization of business structures constituted an indisputable element of interest as a catalyst phenomenon of a set of disruptive processes that lead to profit in terms of efficiency, productivity, and business competitiveness. Moreover, Massaro (2021) found that digital transformation could help solve challenges in medical practice by offering new value development patterns, such as blockchain technology that reduces some difficulties in data management.

In the Philippines, MSMEs account for about 99.5% of all registered businesses, which employ over 63% of the working population. While several studies across the world have shown the impacts of the COVID-19 pandemic on MSMEs (Kim 2021; Herrera 2020; Sahoo and Ashwani 2020), the investigation of this pertinent issue in the Philippines is limited. For instance, Parilla (2021), Hidalgo et al. (2021), and Tudy (2020) investigated the influence of the pandemic mobility restrictions on the digitalization of small businesses. A more

in-depth study by Reyes (2021) took the perspectives of the executives and directors of the country's top business firms to assess the economic impacts of the pandemic and the government's policies and interventions. Hence, this research aims to contribute to the literature by exploring the drivers and barriers of digital transformation of MSMEs during economic disruptions from the perspective of young entrepreneurs in the Philippines. Looking at the perception of young entrepreneurs is crucial as they are considered as catalysts for innovation and economic growth, and because of their eagerness to create a positive difference in their societies (Damoah 2020). Furthermore, since the Philippines is considered the social media capital of the world, it makes young entrepreneurs potential contributors to the success of the socio-economic agenda of the Philippine government for MSMEs (Agoot 2015).

The main objective of this study is to analyze how economic disruptions drive business innovations for MSMEs. Specifically, this aims to (1) explore the lived experiences of young entrepreneurs in doing business during the COVID-19 crisis, (2) investigate the challenges of shifting businesses into digital platforms, and (3) evaluate their implications as bases for government policies and strategies for economic recovery through online entrepreneurship while considering the perspectives of young online entrepreneurs. Using the Philippines as a case study, interviews were conducted with young entrepreneurs to share their perspectives and experiences with the research questions. The collected data were analyzed using Qualitative Inductive Content Analysis. The analysis results identified the drivers (intrinsic and extrinsic motivations) and challenges of digital innovation of MSMEs during economic disruptions such as the pandemic. The findings of this study serve as bases for recommendations to the government and other stakeholders to support entrepreneurship as one of the means to economic recovery during the pandemic and beyond.

The structure of this article is as follows. Section 2 reviews the literature on the theoretical foundations of entrepreneurship and its digitalization during the pandemic. Section 3 discusses the step-by-step procedure for the inductive content analysis. Section 4 presents the results of the analysis, the summary of findings, and the relevant responses of the participants. Section 5 discusses the findings in relation to existing studies, as well as the theoretical, managerial, and policy implications. Section 6 concludes the research and presents the limitations of the study that provide a basis for future research directions.

2. Literature Review

2.1. Theoretical Foundations of Entrepreneurship

Entrepreneurship is the process of offering goods and services with added ingenuity to fulfill the growing needs of a community. The core of any entrepreneurial activity lies in the ability to act on opportunities that lead to new services, products, and methods. (Frederick et al. 2016). Entrepreneurship is the action of an entrepreneur to create, accept risk, and invest in new economic endeavors. Thus, it is considered an effective means of addressing youth unemployment and self-sufficiency, which could be a source of economic growth and innovation in any country (Al Rayes and Kayiaseh 2017; Geibel and Manickam 2017).

Over the past decades, several theoretical perspectives emerged to describe the logic and behavior underlying the entrepreneurial process, as well as the difference between traditional and alternative approaches to entrepreneurship (e.g., effectuation, entrepreneurial bricolage, the creation perspective, and user entrepreneurship) (Fisher 2012). Meanwhile, with the recent COVID-19 crisis, scholars have adopted theories to better understand and explain the economic effects of the pandemic on small businesses across different countries, firm sizes, and the severity of the crisis (e.g., disaster theory, resilience, dynamic capabilities, and digitalization) (Belitski et al. 2021). We adopt these theories to explain the basis of our investigation on the drivers and barriers of digital innovation in MSMEs during the pandemic.

First, the Effectuation Theory as described by Sarasvathy (2001) suggests that under conditions of uncertainty, entrepreneurs adopt a decision logic that is different from that explained by a traditional, more rational model of entrepreneurship. A recent study by

Haneberg (2021) shows that entrepreneurs responded in the second "wave" of COVID-19 based on their perceived uncertainty as well as the eventual learning from the "first wave" of the virus outbreak. The results further show that uncertainty primarily leads to the managers' focus on affordable losses, while learning from a crisis primarily leads to experimentation behavior. In highly uncertain and dynamic environments, the target customers are defined by whoever buys a product or service. Instead of focusing on goals, entrepreneurs exert control over the available set of means (Fisher 2012). Hence, effectuation also means starting the business with the available resources the entrepreneur has and offering the service or product to the current market (Frederick et al. 2016).

The uncertainty in businesses can also be described by Meyer (1982): Resilience Theory referring to the responses to crises and exogenous shocks. These shocks are unexpected or unpredictable events that occur outside an industry but can have dramatic impacts on the performance of markets within an industry. Resilience takes place over time and relates to the recovery of individuals, firms, communities, and institutions (Belitski et al. 2021). Beyond the COVID-19 pandemic, the agility and resilience of new firms can take the advantage of their entrepreneurial orientation to find opportunities in the pandemic-induced economic disruption (Zahra 2021).

Second, Baker and Nelson (2005) introduced the entrepreneurship Bricolage Theory as "making do by applying combinations of resources at hand to new problems and opportunities". Bricolage theory focuses on explaining how entrepreneurship emerges in economically depressed or resource-poor areas by creating something from nothing and combining resources at hand for a new purpose. The unpredictable change brought by this pandemic had led to the creation of a new entrepreneurial design. For instance, consumer behavior has changed to online shopping during the national lockdowns and government restrictions at the time of the pandemic (Lungu et al. 2021). Given these conditions, young entrepreneurs applied their Bricolage crisis response to solve new problems by identifying and pursuing new entrepreneurial opportunities and establishing new directions for their businesses (Kuckertz et al. 2020).

The entrepreneurship bricolage can be related to the Theory of Dynamic Capabilities (Teece et al. 1997) defined as the firm's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments. It refers to the absorptive capacity as the antecedent organizational and strategic routines by which entrepreneurs change their resource base (acquiring and shedding resources, integrating them, and recombining them) to generate new value-creating methods (Belitski et al. 2021). For instance, small firms cope with environmental changes due to the pandemic by pursuing the business model transformation with the change in dynamic capabilities related to the adaptation of digital technologies and digital skills (Priyono et al. 2020). Integrating the above theories results in the Theory of Digitization and the role of digital capabilities in adopting new business models, responding to uncertainty, and developing resilience.

2.2. Digital Entrepreneurship during the Pandemic

Digital entrepreneurship is the process of entrepreneurial creation of value using various socio-technical drivers to support the effective acquisition, processing, distribution, and consumption of digital information (Sahut et al. 2019). As technology advances, firms across all industries realize the importance of digital transformation to make their business sustainable. This digital transformation includes various business functions, such as sales, marketing, human resources, operations, finance, research and development, and customer support service (Antonizzi and Smuts 2020). The contribution of digital entrepreneurship to the economy has brought about a great demand from the academe and various industries in the field of research. The concept is multi- and interdisciplinary between the ecosystem and technology-related practices (Sussan and Acs 2017). Despite being at its prime, digital entrepreneurship has brought a monumental change in how entrepreneurs operate their businesses (Kraus et al. 2018).

Digital technology has transformed how entrepreneurs operate their businesses. New ventures and processes were developed and applied by the digitally equipped enterprises (Nambisan 2017). This paved the way to the acceleration of the digital transformation of MSME, where the direct initiative of the entrepreneur comes from its strong social network and managerial cognition (Li et al. 2018).

Several industries may have closed down and incurred financial losses during the COVID-19, while at the same time delivering new business innovations. Entrepreneurship is heterogeneous, as the entrepreneurs have various ways of thriving and surviving. Entrepreneurship is both integrative and iterative, as the said is dependent on external enablers. Entrepreneurs are the unknown heroes of the pandemic as they did not waver with the chaos amidst the pandemic (Maritz et al. 2020). As a key factor in the development of a sustainable economy, entrepreneurship identifies, creates, and exploits new business options, capable of making a profit from solving social and environmental problems (Lopes et al. 2018).

The effectiveness of e-commerce platforms has proven its monetary benefits as more customers had an increased fear of the COVID-19. More consumers were likely to purchase online rather than visiting a physical for safety and convenience. Therefore, the conception of e-commerce platforms and consumers' fear of the virus generated economic benefits (Tran 2021).

The COVID-19 pandemic had disrupted the economic stand of many countries that had an effect like previous economic disruptions as world wars, pandemics, and world financial crises. A growing fear among entrepreneurs was inevitable, as many feared that new businesses might fail due to reduced demand and financial constraints. At present, the COVID-19 has also presented new business opportunities, like the boost to health-related products and services, including the indirect effects of online services, e-commerce, work from home, the application of online education, and the development of software solutions (Liñán and Jaén 2020).

Various factors affect the digital transformation of MSMEs, comprising of internal and external factors. Among the internal factors include information technology, employees' skills, digital strategy, and financial capability to transform the company digitally (Eller et al. 2020). On the other hand, external factors consist of the availability of digital technology, competition in the market, and the demand behavior of the customers (Wiliandri 2020). There are also other environmental and economic disruptions, which induce abrupt innovations in digital entrepreneurship such as the COVID-19 crisis. Vast literature examined the impacts of the pandemic on MSMEs and the transformation of businesses into digital platforms. For instance,

Lungu et al. (2021) identified the impacts of the COVID-19 pandemic on entrepreneurial opportunities, focusing on the means of actions that can positively affect the future of entrepreneurship. The study combined a review of the literature and multiple regressions of how relevant variables affect new entrepreneurial opportunities. The results highlighted potential benefits of the pandemic on entrepreneurship, including digitalization and the adaption to new market configurations.

In another study, Gavrila Gavrila and De Lucas Ancillo (2021) analyzed the implications and relationship between entrepreneurship, innovation, digitization, and digital transformation using the existing literature and quantitative analysis. The results found that the pandemic accelerated both consumers' habits and organizations' innovation as well as digital transformation towards sustainable growth. The findings also highlighted how the pandemic disrupted sustainable business growth and how it affected the future of business beyond the pandemic scenario, transforming the way society, firms, and customers interact.

Ibáñez et al. (2021) explored the emergence of digital social entrepreneurship (DSE) as a result of a collaboration among many agents, given the government's limited capacity to respond to the stakeholders' needs and satisfaction related to an exogenous event. They applied a Partial Least Squares Structural Equation to test the multiple relationships between variables and estimate the direct and indirect effects with 130 apps related to the

pandemic provided by Google Play and App Store. The study found that DSE functions as catalysts of knowledge transfer and innovation for stakeholder satisfaction when the government cannot meet the population's needs.

2.3. Entrepreneurship in the Philippines and the Impacts of the Pandemic

The Philippines is an archipelagic country in Southeast Asia with a population of 110 million. The continuous growth in population at 1.4% per year and rapid economic development have resulted in a constantly increasing demand for goods and services. As a developing country, its gross domestic product (GDP) is USD 360 billion with a 5-year average GDP growth rate of 6.56% before the pandemic. Its economy is driven by the service sector with a 61% share followed by the industry sector at a 29% share of GDP (DTI 2021).

According to the 2020 List of Establishments report of the Department of Trade and Industry (DTI), 957,620 registered business enterprises operate in the country composed of 99.51% MSMEs and 0.49% large firms. These MSMEs consist of 88.77% microenterprises, 10.25% small enterprises, and 0.49% medium enterprises (DTI 2021). The top industry sectors were (1) Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles (445,386); (2) Accommodation and Food Service Activities (134,046); (3) Manufacturing (110,916); (4) Other Service Activities (62,376); and (5) Financial and Insurance Activities (45,558) which accounted for about 83.77% of the total number of MSME establishments. Before the pandemic, MSMEs generated more than 5.38 million jobs or 62.66% of the country's total employment with a 29.38% share from micro-enterprises followed by 25.78% and 7.50% for small and medium enterprises (DTI 2021).

The COVID-19 pandemic has significantly affected most industries in the Philippines, resulting in the transformation of the business landscape. During this period, MSMEs have suffered immediate losses and tend to be more vulnerable compared to larger firms. Applying various methods, researchers analyzed the impacts of pandemic restrictions on MSMEs and their recovery mechanisms. Among the academic literature are the following:

Hidalgo et al. (2021) evaluated the status and effects of the pandemic to the graduates of the DTI's program for MSMEs in the province of Nueva Ecija. The descriptive method with a semi-structured online survey identified the graduates' profile and the overall impact of the pandemic particularly during the declaration of the community quarantine. The results found the continuity of their business operations amidst the pandemic. They acknowledged that the government initiatives and interventions were significant to ensure the survival of MSMEs. Moreover, the participants responded to economic downturns with optimism as they developed resilience through business continuity training, productivity improvements, and subsidies.

Tudy (2020) applied a phenomenological approach to explore the lived experiences of Filipino professionals as they shift from the corporate world into a work-from-home job as online freelancers. Eleven participants from key informant interviews described the challenges they encountered, such as distractions at home and lack of recognition. The identified themes for the advantages include freedom, additional time with the family, and working flexibility. The analysis found that the benefits of freelance work outweighed the challenges and that freelancing created alternative and inclusive employment opportunities.

These investigations described the influence of quarantine restriction on the digitalization of small businesses. The current study uses the theories of effectuation, resilience, bricolage, and dynamic capabilities to explain the experiences and challenges of young entrepreneurs venturing into online business during the pandemic.

2.4. Research Framework and Prepositions

The above discussions of the theoretical foundations of entrepreneurship and the digitalization of MSMEs during economic disruptions, provided us the basis for the research framework and prepositions (Pr) in this study as shown in Figure 1. The six prepositions include:

Pr 1. Economic disruptions would serve as drivers for young entrepreneurs to continue business operations.
Pr 2. Economic disruptions would serve as challenges for young entrepreneurs to continue business operations.
Pr 3. Challenges caused by economic disruptions would initiate the shutting down of business operations.
Pr 4. The drivers will lead to the digitalization of MSMEs.
Pr 5. The challenges will lead to the digitalization of MSMEs.
Pr 6. Digital innovation would bring about productivity in MSMEs.

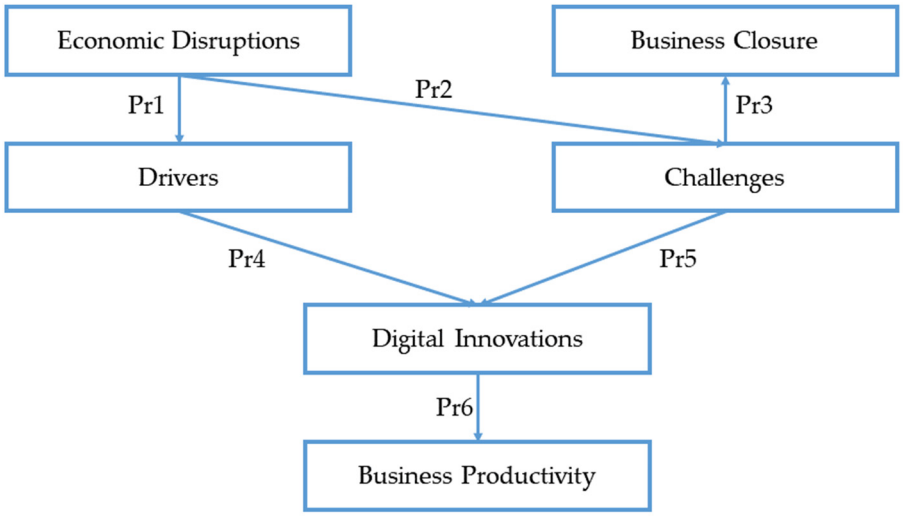

Figure 1. Research Framework and Prepositions of the Study.

Economic disruptions, such as those caused by the COVID-19 pandemic, would serve as drivers (Pr1) or challenges (Pr2) for the young entrepreneurs to continue business operations. These drivers and challenges will lead to the digitalization of MSMEs (Pr4/Pr5) to prevent the spread of the COVID-19 virus and recover quickly from the setbacks caused by the disturbances in business activities, especially if the owners have sufficient resources for this transition. Consequently, this digital innovation would bring about the productivity of entrepreneurial operations as the young entrepreneurs demonstrate resiliency (Pr6). On the other hand, the challenges caused by economic disruptions would initiate the shutting down of business operations if the entrepreneurs lack any means to adapt and prevail (Pr3). The framework developed in this study allows the holistic investigation of the prepositions, enabling more noteworthy results.

3. Methodology

3.1. Research Design

This study described the lived experiences of young entrepreneurs in doing online business at the time of the pandemic. It was not concerned with numerical representativeness nor with making inferences from the sample of a population, but with deepening of understanding a given problem. Hence, we used the qualitative method as it seeks to employ phenomenology to understand the context, describe the behavior and beliefs, recognize the processes, and explore the participants' lived experiences (Batac et al. 2021). This method produces in-depth and illustrative information to understand different dimensions of the problem under analysis. Hence, it is concerned with aspects of reality that cannot be quantified, focusing on the understanding and explanation of the dynamics of social relations (Queirós et al. 2017).

This study referred the respondents as "participants" as they share their experiences through an in-depth virtual interview. Limiting the number of participants to a few

achieved a depth of information, rather than statistical significance. Online interviews were done with the participants to provide a deeper understanding of the issues (Lobe and Morgan 2020). In the current situation in the case country, this is the safest and the most appropriate method while taking precautions on the health and safety of the participants and the researchers during the pandemic (Agaton and Cueto 2021).

3.2. Data Collection

We conducted the study in the Philippines between September and November 2021, more than a year of various levels of community quarantine measures implemented in different parts of the country. The participants of this study included 46 young entrepreneurs, 46% male, 52% female, and 2% others, ages 15 to 50 with a median of 30. Young entrepreneurs were engaged in online selling and reselling (68%), content creation (9%), social media management (9%), online teaching/coaching (7%), advertising and web designing (5%), writing and editing (5%), voice-over services (5%), among others. Most of the participants are self-employed (67%), followed by those who belong to microenterprises (20%) with fewer than 10 employees, small enterprises (11%) between 10 and 50 employees, and medium enterprises (2%) between 50 and 100 employees.

This study performed a purposive sampling according to the following inclusion criteria: (a) young entrepreneur from the Philippines, (b) starting a new business online at the time of the pandemic, (c) voluntary participation in the survey, and (d) completeness of the reports, following three main survey questions and instructions. We identified the sample size based on "data saturation", which refers to the instance when the responses become repetitive and no information is added from continuing the data collection. Hence, the researchers simultaneously conducted the data analysis and the data collection to be mindful of the data saturation.

Researchers conducted the data collection using an online survey (see Appendix A Table A1). The questionnaires were composed of (a) research details such as the objective of the study, anonymity of the participants, and confidentiality of the responses, (b) questionnaire instructions, (c) personal profile of the participants, and (d) three major open-ended questions. In line with the research framework and prepositions of this study, the questions asked include: (1) what are your experiences during the pandemic that made you start/engage in an online business, (2) what are the problems and challenges you experienced in doing your online business at the time of the pandemic, and (3) what policies should the government implement to help young entrepreneurs sustain/start a business and at the same time support entrepreneurship as one of the means to economic recovery during the pandemic and beyond. The semi-structured questionnaires were validated by the experts from the Center for Human Development of the University of Science and Technology of Southern Philippines. The experts looked at the clarity, presentation, suitability, adequacy, and attainment of the purpose of the items. Then, the questionnaires were revised based on their recommendations.

To ensure the anonymity of the participants, the survey form incorporated codes, and the participants received the coded data to have the opportunity to verify and review their responses. The study followed the Ethical Guidelines set by MDPI on research with human subjects. The study adhered to the Declaration of Helsinki and was reviewed and approved by the Ethics Committee of the Center for Human Development of the University of Science and Technology of Southern Philippines. The researchers explained to participants that the study was solely for academic purposes, participation was voluntary, and they were free to opt-out at any time. Moreover, the researchers guaranteed the confidentiality of the responses, as the data were only accessible to the researchers.

3.3. Data Analysis

This research applied the Inductive Content Analysis, which is suitable in qualitative research with an inductive beginning or with loosely defined themes following an open data collection method. Inductive content analysis is a qualitative method used to develop

theory and identify themes by studying documents, recordings and other printed and verbal materials. The advantages of this method include content sensitivity, applicability to highly flexible research designs, and flexibility to analyze several types of qualitative data (Kyngäs 2020b). Compared with other analyses in qualitative research, content analysis allows researchers to systematically and objectively describe research phenomena at the theoretical level that can be applied to various types of documents. It can be used to create concepts, categories, and themes, which can be extended to create models, conceptual structures, and conceptual maps that describe the subject under study (Kyngäs 2020a). Furthermore, inductive content analysis was applied in this study to create concepts, categories, and themes from data as the deductive content analysis are usually applied either to a constrained or unconstrained matrix of analysis depending on the study aim.

The steps in conducting a qualitative inductive content analysis as shown in Figure 2 are as follows: (I) preparation; (II) organization; and (III) reporting. The preparation step included the identification of data collection and sampling strategy. Before starting the analysis, the researchers read through the data several times. After this, the researchers defined the unit of analysis, which could be one word, sentence, meaning, or theme.

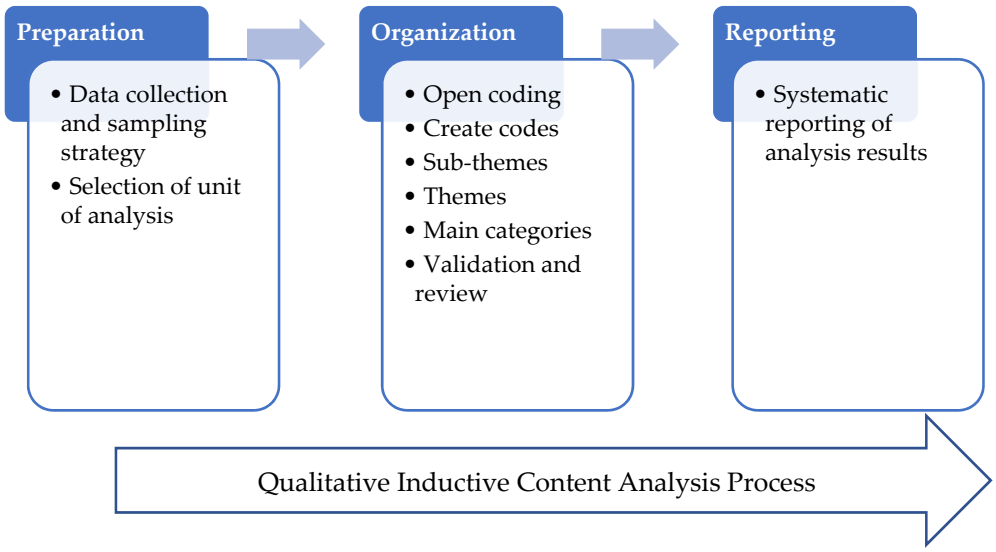

Figure 2. Step-by-step Procedure of Qualitative Inductive Content Analysis.

Second, the organization step involved the categorization and abstraction of the data, interpretation, and checking the representativeness of the collected sample data. In this step, open codes were identified from raw data, which were expressed in words identical to the raw data or coded slightly changed. The researchers compared the content similarities and differences between open codes to determine which codes could be grouped. Next, the data abstraction process analyzed the open codes to form sub-categories, which were further grouped into generic categories and main categories. After grouping, the researchers identified whether the abstraction process should be continued by grouping sub-concepts together based on similarities in content. Researchers must return to the raw data and check that the issues included in the identified open codes were discussed in the context of the meaning of digital entrepreneurship. Upon confirmation, the researchers could name the sub- and main concepts the appropriate names.

Finally, reporting step referred to the systematic and logical reporting of the analysis results. In this step, the researchers described the contents of the presented concepts through the identified sub-categories and open codes by providing authentic citations that connect the results and raw data. Selected citations should reflect different parts of the analytical process as well as include a wide array of participants.

4. Results

We divided the content analysis into three parts. The first part analyzed the experiences of young entrepreneurs that drove them to start an online business during the pandemic. The second part analyzed the challenges faced by the participants in digital entrepreneurship, while the third part analyzed the suggested policy recommendations to address the challenges.

4.1. Lived Experiences of Young Entrepreneurs to Start-Up Digital Entrepreneurship

The abstractions of this data for participants' lived experiences on digital entrepreneurship at the time of pandemic define a total of 25 codes, 7 sub-categories, 2 generic categories, and 1 main category as presented in Table 1. Participants described the two generic categories as extrinsic and intrinsic motivations that drive digital innovations in MSMEs during economic disruptions.

Table 1. Abstraction results of young entrepreneurs' lived experiences on digital entrepreneurship during the pandemic (see Appendix B Table A2 for the Summary of Generated Codes and the Significant Responses).

Main Category	Generic Categories	Sub-Categories	Codes (Frequency of Statements)
Drivers of Digital Innovations in MSMEs during the pandemic	Observed Societal Changes	Strict Observance of Health Guidelines	Travel Restrictions (3) Prohibition Face-to-Face Transactions (3)
		Change in Market Conditions	Business Operation Shutdown (4) Sudden Shift to Online Marketing (12) Growing Demand of E-Commerce (5) Struggles on Digital Marketing (4) Changing Preferences of Customers (2) Rivalry among Companies Offering the Same Products/Services (2) Engage in Various Social Media Platforms (4)
		Change in Household Income	People Lost their Jobs (4) Financial Hardships (8) Experience Income Loss (10)
	Personal Motivation to Startup Online Business	Personal Driving Force	Maximizing free time (4) Earn Additional Income (22) Support the Needs of the Family (3) Get Fund for Education (1) Reduce Stress (2)
		Professional Motives	Gain e-Commerce Experience (2) Showing Off Skills, Talents, and Capabilities (1) Concrete Application of Academic Knowledge (2) Turn into Productive Individuals (2)
		Concerns on Welfare of Fellow Citizens	Creation of Job Opportunities (3) Convenience in Online Purchasing (1)

Extrinsic motivations are societal issues that enable young entrepreneurs to enter the digital platforms of MSMEs during the pandemic. These issues include the sudden changes in mobility restrictions, market conditions, and household economic status which are along with the fourth and fifth prepositions (Pr4 and Pr5) presented. To limit the spread of the COVID-19 virus, the government imposed various community quarantine measures including face-to-face contact and travel restrictions. This greatly affected various societal and economic activities.

Participants described the market conditions as shutting down businesses, a sudden shift in demand to online platforms, and strong competition in innovations of companies offering the same products and services. These conditions are consonant with the third, fourth, and fifth prepositions (Pr3, Pr4, and Pr5). As businesses shut down partially

and completely, numerous workers lost their jobs, which affected the economic status of households.

On the other hand, participants described intrinsic motivations to startup online business including personal motivation, professional growth, and caring for the welfare of others, which agree with the first preposition (Pr1). Personal driving forces are driven by the need to earn extra income to help the family, mental health, and personal development. Despite the young age, entrepreneurs perceived the pandemic and digital entrepreneurship as venues for professional growth.

Remarkably, young entrepreneurs exhibit the "Bayanihan" spirit, a Filipino value meaning "helping one another, community spirit, or solidarity" while starting up online businesses. This communal work is in keeping with the sixth preposition (Pr6). Participants described digital entrepreneurship as a venue to help fellow Filipinos who were greatly affected, financially, by the pandemic as well as provide safer delivery of goods and services.

4.2. Challenges of Young Entrepreneurs to Start-Up Digital Entrepreneurship

The abstractions of the young entrepreneurs' challenges to startup digital entrepreneurship define a total of 28 codes, 9 sub-categories, 3 generic categories, and 1 main category as shown in Table 2. These abstractions are consistent with the second preposition (Pr2). Participants described three generic categories comprising of the challenges in entrepreneurship skills, market-related, and business environment during the pandemic.

Table 2. Abstraction results of young entrepreneurs' challenges in starting-up digital entrepreneurship during the pandemic (see Appendix B Table A2 for the Summary of Generated Codes and the Significant Responses).

Main Category	Generic Categories	Sub-Categories	Codes (Frequency of Statements)
Barriers to Digital Innovations of MSMEs	Challenges in Entrepreneurship skills	Business skills	Creativity in posting ads/marketing strategy (4) Establishing good client relationship/trust (3) Giving quality service
		IT skills	Skill to use the technology
		Personal management skills	Patience/resilience in doing business Self-confidence in live selling (2) Pressure/ mental breakdown Time management (5)
	Market Challenges in Starting-up Online Business	Financing business	Difficulty in increasing capital (2) Lack of capital (2)
		Market Conditions	Strong competition among sellers (6) Limited number of clients/customers/subscribers (5) Small profits for starters (2) Different target markets
		Online Transactions	Availability of supplies (5) Legitimacy of suppliers/sellers Non-payment of delivered items and canceled orders (3) Quality of orders (2)
		Legal Issues	Content copyrights issues Business permit, DTI, BIR applications
	Business Environment Challenges	Availability of Quality Technology	Slow internet connection (6) Availability of gadgets for online transactions Electricity brownouts (2) Inaccurate delivery location
		Community Quarantine Restrictions	Mobility restrictions (10) Health risks Limited banking hours Increasing transportation fee

Being new entrants in the business, young entrepreneurs lack enough entrepreneurial skills related to doing online business, utilizing IT, and personal management skills. Another set of challenges faced by young entrepreneurs was the market conditions in the digital platform. These include financing a startup business, digital transformation of the market, problems with online transactions, and legal issues related to business permit applications, and copyright issues of content creation (e.g., YouTube).

Moreover, the business environment during the pandemic sets another challenge for young entrepreneurs in the digital transformation of MSMEs. Among these challenges are energy and telecommunications infrastructure as well as the community quarantine restrictions to limit the spread of the virus.

4.3. Support for Digital Entrepreneurship from the Perspective of Young Entrepreneurs

The abstractions for Question 3 define a total of 11 codes, 7 sub-categories, 3 generic categories, and 1 main category as shown in Table 3. The generic categories are categorized into government support for start-up businesses, skills development for young entrepreneurs, and providing better infrastructure that facilitates digital entrepreneurship.

Table 3. Abstraction results of young entrepreneurs' recommended policy to support the digitalization of MSMEs (see Appendix B Table A2 for the Summary of Generated Codes and the Significant Responses).

Main Category	Generic Categories	Sub-Categories	Codes (Frequency of Statements)
Policies that support the digitalization of MSMEs	Government support for start-up businesses	Financial support	Subsidy, loans, tax incentive/deduction (18)
		Marketing and administrative support	Start-up support (marketing, business permits, DTI, BIR, etc.) (15) Localized online 'tiange', marketing, products expo (6)
		Legal support	IT support and legal protection for sellers and buyers (6)
	Skills development	Skills enhancement	Financial, accounting, IT, entrepreneurship skills training (15)
		Entrepreneurship education	Entrepreneurship as an elective course
	Infrastructure Development	Improving internet connectivity	Improve internet speed and reach, data (5) Competition of telecommunication companies (2) Lower internet rates (3)
		Energy and technical improvement	Improve energy infrastructure (3) Improve GPS

In terms of start-up support for young entrepreneurs, 18 participants agreed that financing is crucial to starting a business. This include loan with minimal interest, subsidy during lockdowns, and tax reduction or exemption for the duration of economic disruption. Young entrepreneurs also raise the concern to promote their products through online marketing to reach a wider range of customers as well as help them to apply for business registration. On the other hand, the government should provide legal protection to entrepreneurs and customers from fraud.

To make new MSMEs competitive and at the same time sustainable beyond economic disruptions the government should provide programs that hone entrepreneurial skills. Participants identified these skills such as financial, accounting, IT, and digital entrepreneurship skills. Additionally, schools should offer elective courses that teach the basics of entrepreneurship. Lastly, participants recommended that the government should implement programs that promote competition of telecommunication companies to decrease the price while providing more quality internet connectivity. In addition, in-

frastructure that provides a more reliable source of electricity, particularly to rural areas, should be developed.

5. Discussion

This study examined the young entrepreneurs' lived experiences in shifting business to digital platforms during the pandemic. The findings show three interesting points for discussion. The first point summarizes the main results and highlights the novelty of the findings in relation to existing studies. The second point proposes the policy implications of the study on digital innovations during economic disruptions. The last point describes the business industry as well as the managerial implications of the findings.

5.1. Drivers and Barriers to Digital Innovations in MSMEs

Applying the qualitative inductive content analysis of young entrepreneurs' lived experiences, the results found two interesting results: both extrinsic and intrinsic motivations drive digital innovations during economic disruptions. Extrinsic motivation involves exhibiting a behavior, doing something, completing a task to attain some external goal, or meeting some externally imposed constraint such as avoiding punishment or receiving a reward (Hennessey et al. 2015). In this study, participants described these constraints as community lockdown restrictions, changes in market demand and market conditions, as well as the sudden change in household economic status brought by the pandemic. Recent studies also show that the COVID-19 crisis severely affected the MSMEs as they faced several issues in financing, supply chain disruption, decreasing demand, reduction in sales and profit, among others (Shafi et al. 2020; Asiati et al. 2021). Expression of entrepreneurial abilities and qualities, such as a business idea, obtaining financial resources, networking) can be defined by factors that are important in deciding to start a business during a pandemic (Išoraitė and Gulevičiūtė 2021). Meanwhile, Lopes et al. (2021) found that students' preference to being employed, changed during the pandemic, as they begin to prefer to be entrepreneurs in this new environment, which shows a greater perception of the values of entrepreneurship by society during the COVID-19 pandemic, given their advantage of having more entrepreneurial abilities/skill sets than before the pandemic. The responses of young entrepreneurs to these extrinsic drivers to digital innovations reflect various entrepreneurship theories: effectuation, bricolage, resilience, and dynamic capabilities.

Intrinsic motivation, on the other hand, involves doing something for its own sake as people become more creative when they feel motivated primarily by the interest, enjoyment, satisfaction, and challenge of the work itself and not by external pressures or inducements. Participants in this study described these factors as personal motivation to digital entrepreneurship, professional growth as young entrepreneurs, and the opportunity to help fellow citizens, particularly those severely affected by the pandemic. Contrary to the results from previous studies (Asiati et al. 2021; Išoraitė and Gulevičiūtė 2021; Shafi et al. 2020; Parilla 2021) that focused only on extrinsic motivations, our results found that intrinsic motivations were equally important drivers to digital innovations of MSMEs. These highlights the novelty of our findings with the role of internal and external factors that drive digital entrepreneurship. These also emphasize the advantages of using the qualitative method being exploratory with depth and richness of information, which are not possible using the quantitative method with restrictive questionnaires (Agaton and Cueto 2021).

In terms of the challenges in digital entrepreneurship at the time of the pandemic, participants described three main barriers: entrepreneurship skills, market conditions with digital platforms, and the business environment. These supported previous studies discussing the challenges of digital entrepreneurship. For instance, Xing et al. (2021) presented the barriers and challenges faced by MSMEs in adopting digital innovation which include business, technology, skills, supply chain, and innovation. Other studies identified the challenges for digital entrepreneurship including a firm's organizational structure, IT infrastructure, market changes, unprecedented risks, and uncertainties in technology and new business models (e.g., Facebook or Google) in terms of country-specific regulations

(Kraus et al. 2018; Qian Qiu and Mok Kim Man 2021; Gavrila Gavrila and De Lucas Ancillo 2021). Further, Samara and Terzian (2021) found that a weak institutional infrastructure (e.g., start-up funds, policies and regulations, digital infrastructure, skilled laborers) and an environment characterized by corruption hinder the entrepreneurs' operations. Moreover, the uncertainty about the income, the risk of losing property, money and/or time costs due to possible failure, and the absence of a permanent job can suppress entrepreneurship abilities (Išoraitė and Gulevičiūtė 2021). Costa and Castro (2021) classified these barriers to the digitalization of MSMEs into two main vectors: internal factors (lack of awareness and digital literacy towards digital implementation) and all external factors.

This study added another layer of barrier emancipated from economic disruptions such as the COVID-19 crisis. Among the pandemic-related challenges faced by young entrepreneurs, including mobility restrictions and health risks in delivering the goods and services ordered online, limited banking and business transaction hours, and increased operational costs from stricter transportation regulations. During the pandemic, regional and local restrictions for some sectors resulted in major economic difficulties among the self-employed with people being encouraged or required to stay at home, online transactions for retail shopping, and various types of personal services have soared, prompting existing off-line businesses to pivot their business models (Reuschke et al. 2021). Further, the governmental restrictions hampered the entrepreneurs' ability to seek support in their network with peers or professional advisors and mentors, which are crucial for them to access social support (Meurer et al. 2021). To overcome these challenges, young entrepreneurs must possess resilience, bricolage, effectuation, and dynamic capability as discussed in the theoretical framework for digital entrepreneurship under economic disruptions.

5.2. Policy Implications of the Study

With the digitalization era, innovations in products and services are crucial in attracting new customers while retaining existing ones. However, young entrepreneurs encountered several barriers to digital innovations. The findings of this research provided several policy implications that could address these challenges and help them start up online businesses during and beyond economic disruptions.

First, the government must provide support for start-up MSMEs in terms of financing, technical capacity, marketing, and all business registration requirements. Financial incentives, such as tax reductions/credits, grants, subsidies, and other similar instruments have been used by governments to stimulate technological innovations in MSMEs, which can help firms improve productivity (Quimba and Rosellon 2019). Considering the vulnerability of MSMEs to severe economic shocks, the immediate policy priority on financial support at the beginning of the pandemic addressed the challenges of the survival phase that prevent liquidity crunches and minimize employment losses (Juergensen et al. 2020; Asiati et al. 2021). Further, studies showed that technical, financial, soft (networking, mentoring, raising awareness, education, training, consultancy, problem-solving skills, and acquiring learning capabilities) skills and government support hold a significant relationship with the survival of start-up MSMEs (Hung Kee et al. 2019; Pu et al. 2021).

Second, the government must provide training support for upskilling young entrepreneurs to improve technical competency, marketing, and financial literacy. A study showed that technology and innovation capabilities have a positive and significant effect on the business resilience of MSMEs during the pandemic (Anggadwita et al. 2021). In another study, accounting skills, both management and financial, have significant positive effects on MSMEs' performance during the pandemic and could be further strengthened by utilizing digital technologies, which could provide more accurate, more effective, and more efficient financial data and financial reports (Apriyanti and Yuvitasari 2021). Policies should address the barriers to digital entrepreneurship through structures that build digital and entrepreneurship skills through education and training programs (Reyes 2021). For instance, educational institutions may consider cybersecurity as a crucial aspect of digital education with the use of mobile banking apps, contactless payments, and online shopping

apps. In addition, it is important to help young entrepreneurs to build stronger networks to improve their access to funds, opportunities, clients, partners, and suppliers (OECD 2015). A public-private partnership must be encouraged to reduce these technical and financial barriers to MSMEs.

Third, with the rapid digitalization of the market, the government must fast-track the improvement of the country's IT infrastructures to accelerate the digital innovations in MSMEs and the economy as a whole. Comparing the current global IT situation with the Philippines, the country's Internet infrastructure lags behind among those of contemporary developing countries in Asia, which hampers the motivation of users to innovate and contribute to inclusive growth and the development of inclusive information society (Salac and Kim 2016). Worse, the announced and unannounced power outages due to energy security and rural electrification problems in the country further exacerbated the interruptions and slow internet (Collera and Agaton 2021). The lack of competition in the market also causes the dilemma of slow and costly internet connectivity (Salac and Kim 2016). The role of the government in promoting the competitiveness of the energy and IT infrastructure industries is a significant factor to address these concerns along with the intensification of competition for quality products and services that could reduce the cost of internet connection. Additionally, the government should offer viable options for effective broadband connectivity, particularly to remote and rural areas, through new satellite systems that can complement the current fiber technology connectivity. On the other hand, IT infrastructure development should be complemented by promoting training programs in digital skills and information on existing technologies that could be applied to production processes and marketing channels to allow more dynamic e-commerce and increase the number of services offered on the internet by MSMEs (Jorge-Vázquez et al. 2021).

5.3. Business Sector and Managerial Implications of the Study

Besides policy implications, the findings of this study also provided business industry as well as managerial implications. Understanding the dynamics of the digitalization of MSMEs helps organizations and the industry to make better decisions in navigating the new norm of doing business. To prosper in a rapidly changing business environment, entrepreneurs must acquire the roles of two IT capabilities that affect firm performance, namely, (1) flexible IT infrastructure, which is a carefully planned and developed technological foundation for present and future IT applications, and (2) IT assimilation, or the ability to diffuse and routinize IT applications in business processes (Liu et al. 2013). Businesses who are familiar with the challenges and possibilities of digitalization of their products and services would be able to hurdle the obstacles of e-commerce or even in the transition from conventional to digital commerce (Costa and Castro 2021). This transition to e-commerce in turn would have a wider reach of their customers given the boom of digital platforms. Digital technology is the apparent rescuer to mitigate changes in business strategy, particularly to the industries that are mostly affected by the pandemic (Mohapatra et al. 2021). Additionally, online services have improved significantly in recent years, across numerous countries, which have now more online options than ever. Preparedness and strategies of businesses such as price sensitivity, changes in online purchasing processes, among others, help in managing the supply chain and sustainability of the online businesses (Charlebois et al. 2021).

In recent years, MSMEs have achieved significant development, particularly in e-commerce platforms. Various digital tools are used in finance activities (payment transactions, working capital management, financing management), production and operations activities (material handling, product design, production, quality control), human resource management activities (teleworking options for staff, evaluation of staff performance), and marketing activities (sales of goods or services, advertising) (Muhamad et al. 2021). Management should have a deeper understanding of e-commerce to redefine their branding and make customers trust their services (Farooq et al. 2019). MSMEs should improve their web presence such as an upgrade of their website and improvement of logistical

services to maximize the company's customer services. Additionally, entrepreneurs should understand the importance of internet connectivity to the productivity of their business as it is crucial to the cost the company may incur, as well as the data security the company provides its customers. Blockchain technology has the potential to help speed up this digital transformation process by reducing certain elements, such as data management issues (Massaro 2021). Further, entrepreneurs should ensure the availability of human resources who are capable of managing the online platform of the MSME to accommodate the queries, orders, and other online transactions of the customers.

Social networking, which is mostly discussed in sociological terms, is seen to be relevant in the digitalization of MSMEs such that businesses invest in social capital, through networks, to gain leverage or competitive advantage in the online platform (Liu et al. 2020). Entrepreneurs can improve themselves by strengthening their social networks, through joining various social media and e-commerce platforms, to acquire information and gain better access to knowledge and resources that otherwise would not be as easy and as readily available to them (Li et al. 2018). Moreover, for businesses that offer heterogeneous services before the pandemic, the theory of entrepreneurial bricolage suggests that the actions and decisions of an entrepreneur vis-a-vis in establishing its brand would have an impact on the diverse transactions and growth of the company (Fisher 2012). Hence, digital innovations are essential to the understanding of young entrepreneurs in introducing new products and services in the market. This may entail greater risk but it can be buffered through related diversification and effective business response and innovation strategies, particularly during economic disruptions such as the pandemic.

6. Conclusions

6.1. Summary of the Study

The pandemic accelerated the digital transformation of MSMEs and created a landscape that encourages entrepreneurs to adopt technological innovations to stay in the business. Numerous studies discussed entrepreneurship using various theoretical frameworks. This paper focused on entrepreneurship theories that address innovations during economic disruptions such as effectuation, resilience, bricolage, and dynamic capabilities.

This research aimed at applying qualitative inductive content analysis to explore the drivers and barriers to digital innovations of MSMEs at the time of pandemic from the perspective of young entrepreneurs. The findings revealed that digital innovations during this economic disruption were driven by extrinsic (restrictions and market demand) and intrinsic (personal and professional development, concern for others) motivations. MSMEs were mostly affected by the pandemic restrictions as, in comparison to large firms, they were usually lacking sufficient resources in terms of financing, management, and technology, and were unprepared for such disruptions that took longer and graver than expected. Despite the minimal government support for MSMEs, young entrepreneurs found ways to survive in the business through digital innovations, along with the increasing online demands for goods and services during the community lockdowns. These digital innovations have reflected theories of effectuation, resilience, bricolage, and dynamic capabilities at times of uncertainties and economic disruptions. On the other hand, young entrepreneurs faced challenges in terms of skills needed for doing online business, market-related problems in digital platforms, mobility restrictions, and availability of quality internet infrastructures.

6.2. Contribution and Implications

The results of this study provided two major contributions. First, both extrinsic and intrinsic motivations drive digital innovations in MSMEs. Second, economic disruption acts as an external enabler and at the same time, a barrier to digital innovation if the infrastructure, market, entrepreneurs, and other stakeholders are not ready for the transformation. To address these challenges, the government should provide interventions in terms of (a) giving financial support to young entrepreneurs; (b) encouraging public-private partnerships to reduce financial and technical barriers to MSMEs; (c) upskilling young

entrepreneurs to improve technical competencies and financial literacy; (d) start-up support for marketing and all business requirements; and (e) improving the country's information technology infrastructures that accelerate the digital innovations in MSMEs as well as the whole economy.

6.3. Limitations and Future Research Directions

This study focused on the analysis of young entrepreneurs' perspectives and experiences in digital business innovations at the time of the pandemic. This leads to several limitations of the study. First is the use of qualitative content analysis of participants' lived experiences, which is unable to provide numerical information for further statistical analysis. Hence, the research findings cannot be applied to a larger population with similar uncertainty that can be done using the quantitative analysis method. This qualitative research used a semi-structured questionnaire, which provided the participants to express their experiences and write their ideas freely. Such information could not be gathered by utilizing the quantitative method, as well as with structured and restricted questionnaires with predetermined questions and answers. Future research may consider combining qualitative and quantitative methods to take advantage of the strengths and minimize the weaknesses of these methods.

This study used an online survey with 46 young entrepreneurs as participants. There are several advantages of online qualitative surveys including no direct contact with participants, which minimizes the risk to researchers, is less demanding when it comes to time and resources for data collection, allows for flexible time for interviews with participants, and permits more time for the researchers to do the analysis (Braun et al. 2020). On the other hand, online surveys suffer from unrepresentative sampling, low response rates, internet restrictions, and scarcity of follow-up information (Rice et al. 2017). Given the restrictions of limited face-to-face contact, this study put priority on the safety of the researchers and the participants. With the limited number of participants, caution must be applied that the findings in this study cannot generalize the entire entrepreneurs in the case country while the data only relied solely on the participants' perceptions and lived experiences during the pandemic. Participants in future studies may include a wider variety of young entrepreneurs from various subsectors such as digital solutions, business process outsourcing, microfinancing, online events management, and so on. Moreover, this study took only the perspectives of young entrepreneurs. Studies show that a more holistic approach to taking the perspective of various stakeholders must be considered in policy decision-making. Future studies may include other digital entrepreneurship stakeholders including policymakers, LGUs and support units, entrepreneurs using traditional platforms, and consumers, to make a more holistic decision making for programs that support young entrepreneurs and the economy as a whole.

Finally, this study explored the lived experiences of the participants on the pandemic. It should be noted that in several countries, including the Philippines, numerous humanitarian emergencies exacerbated the impacts of the pandemic (Cueto and Agaton 2021). These emergencies include natural and manmade disasters, wars and conflicts, social unrest, and terrorist attacks. Future studies should consider the impacts of having multiple disasters on businesses, particularly digital entrepreneurship, as well as how young entrepreneurs cope up with these disruptions.

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Institutional Review Board Statement: The study was conducted according to the guidelines of the Declaration of Helsinki and approved by the Ethics Committee of the Center for Human Development, University of Science and Technology of Southern Philippines.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The processed data are presented in Tables 1–3 and in Appendix B. Raw data are available on request from the corresponding authors.

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Appendix A

Table A1. Survey Questionnaire.

Digital Innovations in MSMEs during Economic Disruptions:
Experiences and Challenges of Young Entrepreneurs

This survey aims to document the experiences and challenges of young entrepreneurs in sustaining/starting an online business during the pandemic. This further aims to recommend government policies to help young entrepreneurs in coping up with the impacts brought by the pandemic.

We guarantee the anonymity of the respondents and that the responses will be used solely for academic purposes and not for commercial use. Before the submission for publication, we will contact you again to check whether you agree/disagree with the contents to be published.

Your cooperation is highly appreciated for the success of this research.

Researchers:
Dr. April Faith D. Frisnedi, Pamantasang Lungsod ng Muntinlupa
Dr. Casper B. Agaton, University of the Philippines Los Baños
Kenneth Ian T. Batac, De La Salle University
Reynaldo B. Collera, University of Science and Technology of Southern Philippines
Lead: Lavinia J. Cueto, Department of Education—MIMAROPA

1. Personal Information

   Name/Alias_____ Age: ____ Gender: M/F/Prefer not to mention
   City/Province/Region_____ Number of employees: _____

Type of Business:	Type of Enterprise
Content Creator	Microenterprise (<10 employees)
(Blogging, Vlogging, podcasting)	Small enterprise (10–49 employees)
Writing/editing/researching	Medium enterprise (50–99 employees)
Social Media Manager	
Online Store, reselling, affiliate marketing	
Advertising, web/graphic design	
Voice over services	
Digital/virtual assitant	
Online course/teaching, online tutoring,	
Coaching, business coaching, consulting	
Others, please state: _____	

2. What are your experiences during the pandemic that made you start/engage in an online business? *Ano ang iyong mga karanasan sa panahon ng pandemya na nagtulak sa iyo upang magsimula ng isang online na negosyo?*

3. What are the problems and challenges you experienced in doing your online business at the time of the pandemic? *Ano ang mga problema at hamon na iyong naranasan sa paggawa ng iyong online na negosyo sa panahon ng pandemya?*

4. How should the government help young entrepreneurs in building/starting or continue doing business during a pandemic? *Paano dapat tulungan ng gobyerno ang mga batang negosyante sa pagtatayo/pagsisimula o patuloy na pagnenegosyo sa panahon ng pandemya? Anong mga patakaran ang dapat ipatupad ng gobyerno para matulungan ang mga batang negosyante na mapanatili/magsimula ng negosyo at kasabay nito ay suportahan ang entrepreneurship bilang isa sa mga paraan sa pagbangon ng ekonomiya sa panahon ng pandemya at higit pa?*

Appendix B

Table A2. Summary of Codes and Relevant Responses.

Drivers to Digital Innovations of MSMEs	
Code	**Significant Statements**
Travel Restrictions	*Quarantine restrictions limit our mobility (travelling from one island to another) which part of our business.* P5
Prohibition Face-to-Face Transactions	*Face-to-face gathering were suspended.* P14
Business Operation Shutdown	*I stopped operating my small business venture.* P21
Sudden Shift to Online Marketing	*The pandemic affected me tremendously. Our milk tea business closed down, as our clients were students who shifted to online classes due to lockdowns. At present, I'm busy with content creation with TikTok where I can collect coins/gifts that are convertible to cash.* P35
Growing Demand of E-Commerce	*I saw an opportunity to earn extra income as the pandemic boosted the demand for e-commerce.* P6
Struggles on Digital Marketing	*It's hard for me to have a customer as of now since I'm just starting, but I would take the ad-vantage of social media to gain potential customers.* P34
Changing Preferences of Customers	*Due to travel restrictions, people stay at home and most of the purchases for food, clothing, groceries, and household items are done online.* P11
Rivalry among Companies Offering the Same Products/Services	*All transactions are done online.* P10 *Many competitors.* P20 *Increasing number of competitors.* P25
Engage in Various Social Media Platforms	*With the help of my girlfriend and my family members, we promote our business in social media. Online sales are great and we are able to reach our target. Delivery of the products is easy. We chat our customers and the delivery rider from different companies send it.* P16
People Lost their Jobs	*Some of the drivers lost income, as there are no commuters in the city.* P11
Financial Hardships	*Many people lost their jobs and need money to sustain a living. We took the opportunity to start a business in money lending.* P10
Experience Income Loss	*I lost my job as the small business closed down due to pandemic.* P21
Maximizing free time	*Due to sudden financial difficulties, I need to earn extra income while maximizing my free time.* P5
Earn Additional Income	*I need to earn extra income to provide greater financial support for my family and have enough funds to pay monthly bills.* P41
Support the Needs of the Family	*I need to support the daily needs of my family.* P13
Get Fund for Education	*I want to support my studies. I want to earn money even if I am still a student.* P18
Reduce Stress	*Online business relieved my depression from the pandemic.* P25
Gain e-Commerce Experience	*I don't have any reason; all I want is to gain experience.* P16
Showing Off Skills, Talents, and Capabilities	*Pivoting my business online was the most logical thing to do to keep afloat and to continue to have a stream of income using my skills, talents, and capabilities. The Tourism, Events and Entertainment Industry are the most affected in this crisis and bang part of this segment; we need to do something to help ourselves and those we work with.* P12

Table A2. *Cont.*

Drivers to Digital Innovations of MSMEs	
Code	**Significant Statements**
Concrete Application of Academic Knowledge	*I want to apply what I learned in school.* P18
Turn into Productive Individuals	*The financial difficulties brought by the pandemic pushed me to start an online business. Since I am of legal age, I set myself to be financially independent and not asking my parents for personal expenses.* P45
Creation of Job Opportunities	*Our delivery service business provides additional income while working at home and at the same time gives employment to drivers in the city.* P11
Convenience in Online Purchasing	*Online selling provides additional income and at the same time to provide a product or services that will help other people not to risk their life buying in the physical store. For them to relax, hassle-free, and most importantly to be safe.* P26
Barriers to Digital Innovations of MSMEs	
Code	**Statement**
Creativity in posting ads/ marketing strategy	*Fortunately, another way selling items is through posting the most attractive picture of the items one by one to attract the buyers and for them to see the details of the item.* P27
Establishing good client relationship/trust	*It's hard to gain the trust of other people in buying online products.* P26 *It is difficult to develop a good relationship with clients.* P20
Giving quality service	*It was a challenge to render quality service for all online transactions.* P45
Skill to use the technology	*The skills and software had to be learned and mastered.* P12
Patience/resilience in doing business	*Patience and resilience are needed.* P16
Self-confidence in live selling	*I want to do live selling but I don't dare to do it as I am camera shy.* P27
Pressure/ mental breakdown	*I can't function to do business at times especially when I'm busy with school works, mental breakdowns, and other agendas that require me to travel away from the city.* P15
Time management	*As a student, it was difficult to manage time. I need to balance studies and business.* P46
Difficulty in increasing capital	*Difficulty in accumulating more capital because pre-pandemic I utilize my allowance money to expand my business capital.* P33
Lack of capital	*There were times that I had to use my business money for an emergency.* P18
Strong competition among sellers	*Many competitors are selling the same products online.* P20
Limited number of clients/ customers/subscribers	*It was difficult to start vlogging as there were no channel subscribers in the beginning. However, since many people are always online, it was easy to get subscribers until I get enough to get monetized.* P9
Small profits for starters	*Small earnings.* P28
Different target markets	*Difficulty in thinking of a marketing strategy.* P28
Availability of supplies	*Pick up of supplies took longer due to some restrictions.* P29 *Getting the supplies that I needed is difficult.* P5 *The stocks of products are limited.* P36
Legitimacy of suppliers/sellers	*It was hard to find a legit supplier when I was starting.* P37

Table A2. *Cont.*

Barriers to Digital Innovations of MSMEs	
Code	**Statement**
Non-payment of delivered items and canceled orders	*Cancelled orders, uncertainty in the quality of orders, reduced self-confidence to continue online business due to uncertainty of making your business attractive to customers. Patience and resilience are needed.* P16
Quality of orders	*Customers compare products from different sellers. Sometimes, wholesales earn higher profits. P16*
Content copyrights issues	*There are some issues with copyrights*. P20
Business permit, DTI, BIR applications	*It is difficult to process all the needed documents in starting a business.* P10
Slow internet connection	*Sometimes there is no internet connection which is very crucial during an online meeting and video conferences with the clients.* P4 *Sometimes internet connection is weak.* P9 *Connectivity. As everyone was transitioning to online platforms—from online classes, to work from home set-up to online transactions—everyone uses internet and the share of bandwidth of connectivity was just terrible. And it was expensive.* P14
Availability of gadgets for online transactions	*First, it was the proper equipment needed to make the online transition smooth.* P12
Electricity brownouts	*Another issue is the announced and unannounced brownouts, which are particularly rampant in the province, that affects both power source for the gadgets (laptop, smartphone) and the internet (no power, no internet).* P4 *Power interruptions hinder making and uploading videos.* P9
Inaccurate delivery location	*Some addresses are not located or misallocated in Waze app. Prank costumers who order but unable to pay.* P11
Mobility restrictions	*It was difficult to find clients since everything is restricted with pandemic protocols.* P45 *Heightened community restrictions made it hard for me to go outside to deliver the products that I sell.* P18
Health risks	*There are risks in meeting other people to deliver the items ordered online.* P26
Limited banking hours	*Limited banking hours due to restrictions*. P10
Increasing transportation fee	*The fare in transportation is high every time I delivered my products*. P26
Policies that support the digitalization of MSMEs	
Code	**Statement**
Subsidy, loans, tax incentive/deduction	*The government should provide access to funds for business starters in terms of start-up subsidy, loans, and equity. Interest rates for loans should be lowered for those businesses affected by the pandemic.* P4 *Having a financial program that they can borrow money for their business with a lower interest than the current banks offer*. P5
Start-up support (marketing, business permits, DTI, BIR, etc.)	*Government should provide a seminar on legal requirements in starting a business, like applying for a business permit, BIR, mayor's permit, barangay clearance, etc.* P10 *There should be a program for students that would like to start a small business such as easy application of DTI, BIR, and other legal requirements to start a business. Then, registered businesses can easily be recognized while requiring them to provide quality service to customers.* P45

Table A2. *Cont.*

Policies that support the digitalization of MSMEs	
Code	**Statement**
Localized online 'tiange', marketing, products expo	*I think they should support promoting products from local sources/entrepreneurs, perhaps doing exhibits or bazaars that can showcase them. Also, maybe introducing a unified e-platform for online 'tiange' which accommodates local products/services that is verified and supported by the local government to assure its credibility.* P24
IT support and legal protection for sellers and buyers	*E-commerce, digital business, and virtual careers are here to stay, the government must have a more solid approach on how to deal with fraud and ensure safety measures to protect e-commerce businesses, come up with policies to also police digital businesses better to filter out the scams from the legitimate ones.* P12
Financial, accounting, IT, entrepreneurship skills training	*Programs to help young entrepreneurs market their works, free training for online marketing, SEO and alike to boost sales.* P5 *Knowing the business is an asset. It's good if the government would implement seminars that would let young people engage and be eager to learn about the business world and how it benefits someone as a person and as a future business owner.* P15 *The government should provide free webinars on how to start an online business and/or how to maintain it. Also, they should provide support such as microfinancing especially to young entrepreneurs who would like to expand/upgrade the business.* P38
Entrepreneurship as an elective course	*With or without pandemic, the government should inculcate the advantages of having your own business to all students. We can have a business class as an elective subject in the school.* P29
Improve internet speed and reach, data	*The government should look into improving the provision of data connectivity among the Telcos.* P14
Competition of telecommunication companies	*With the digital transformation of businesses, the government should allow entry of foreign internet providers to increase the local competition and decrease the price of internet connection while providing quality and faster internet*. P4
Lower internet rates	*Make it affordable to the masses, yet fast. Now, it is excessively expensive but with a very slow connection. The more connection reach, the more market to serve.* P14
Improve energy infrastructure	*The government should invest in energy infrastructures to address the brownout problems in the provinces.* P4
Improve GPS	*The internet connectivity across the country must be strengthened so its full potential can be enjoyed by everyone.* P12

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