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Digital transformation COVID-19 era: startup strategies for technology, management, and people

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ABSTRACT

Startups are not an exception to the fast acceleration of digital transformation across sectors caused by the COVID-19 pandemic. Digital transformation has served as a strategic lever for startups to improve operations, enhance customer experiences, and develop new business models. This study investigates how startups in Western Visayas, Philippines, navigated the pandemic while undergoing digital transformation. Our primary objective is to provide a comprehensive understanding of digital transformation, outlining its key components. By analyzing relevant business literature, we identified three core areas: i) technology, ii) management, and iii) people. This research explores the strategies employed by startups to embrace digital transformation, the technological tools they utilize, and the critical role of effective leadership and organizational culture in successful transformation initiatives. Data was collected through an online survey administered on Qualtrics. The findings reveal that most startups adapted their business models, leveraged social media platforms, and relied on their customer base for support during the pandemic. This study contributes to the existing knowledge base by offering insights into the digital transformation landscape in the Philippines. Furthermore, it enhances our understanding of the strategies and processes required to address the challenges of the digital age.

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1. INTRODUCTION

The world has had the chance to witness one of the paramount economic tremors in history during the past years: the digital transformation, also often known as the digital revolution [1]. The concept, which first reaped prominence in 2011, has various definitions, but authors have pointed out a common element-the use of technology to drive change or improve an organization, a business, or an industry [2]–[5]. A unified definition was provided in 2021 by Gong and Ribiere [6], which describes digital transformation as "a fundamental change process, enabled by the innovative use of digital technologies accompanied by the strategic leverage of key resources and capabilities, aiming to radically improve an entity and redefine its value proposition for its stakeholders". These various definitions demonstrate that digital transformation is a procedure rather than a single action to advance the function of an organization. It is largely directed at utilizing digital technologies like social media, mobile, cloud, analytics, and the internet of things (IoT) to improve productivity, reduce costs, and effect innovations at institutional and societal levels [7], [8]. In the context of business, digital transformation can be categorized into three elements, namely, technologies, management or processes, and people [9]. Technologies, the most frequently mentioned pillar of digital

transformation, encompass elements such as data, big data, cloud, mobile devices, social media, software, analytics, embedded devices, artificial intelligence, IoT, cybersecurity and app marketplaces, and the precepts of digitization and digitalization. Management processes component, on the other hand, underscores the essential role of changing the concepts of business models, organizational culture and mindsets, the company's value chain, and leadership in paving the way for digital transformation [7], [10]. This category includes operating models, operational processes, business models, strategies, business activities, organizational structure and culture, coordination mechanisms, products, and new services [9]. The last element of digital transformation, people, is composed of customers, employees, managers, executives, talents, owners, suppliers, partners, stakeholders, and competencies [9]. It emphasizes the importance of investing in people to drive a business that is prepared to grow, adapt, scale, and change into the foreseeable future.

Digital transformation has gained repute as a primary concept in the global company, rendering numerous benefits, including enhanced strategies for product marketing, blurring of geographical boundaries, and the expansion of business operations' access to national and global markets [11]–[13]. It has been an indispensable tool for problem-solving, opening a world of new opportunities for business ventures while harnessing faith and support from consumers. In recent years, many enterprises have been involved in complex processes of transformation driven by an array of factors, such as advancements in technology, political regulations, or serious emergencies. The adoption of digital transformation was markedly hastened during the onslaught of the COVID-19 pandemic to compensate for limited mobility. It has brought to light the economic consequences of the digital revolution and facilitated the recovery of business after the pandemic [13].

The imposition of lockdowns, stay-at-home regulations, and reduction in mass mobility at the height of the pandemic prompted consumers to purchase products online, students to adopt remote learning, and offices to implement work-from-home arrangements. At the same time, the Philippine startup industry came into the limelight, enabling people to promptly take on a variety of digital technologies, ranging from e-commerce and fintech to online entertainment and medical consultation. A startup is defined as "a young company that transforms technologies and finds innovative applications of existing technologies to create a new product or service" [14]. Startups are increasingly deemed essential players in today's innovative landscape, superseding products offered by traditional industries and changing the pathways through which products or services reach consumers [14], [15]. In the Philippine settings, they have been known to make a substantial contribution to the economic development of the country, generating job opportunities, foreign exchange income, and reducing poverty [16].

Digital transformation has served as a strategic crossroad for startups to better their operations, improve consumer experiences, and build up new business models [17]–[19]. Shifting from manual to automated processes and leveraging data analytics have propelled startups to gain a competitive edge. This has allowed them to restructure their operations, reduce costs, and improve efficiency. Despite the established advantages of the digital revolution in many industries and businesses, studies on the intersection of startups and digital transformation are still in their infancy [15], and much has to be done to elucidate how digital transformation has been beneficial in shaping startup ventures, especially in the Philippine context. This knowledge gap has led to the formulation of the present work. This study seeks to evaluate how startups used digital transformation to thrive and sustain themselves during the height of the pandemic. It emphasizes the digital transformation techniques implemented by startups within Western Visayas, Philippines, and offers insightful information on the strategies and procedures essential to deal with the challenges of the digital age.

2. RESEARCH METHOD

The present study adopted a descriptive design and employed a three-part procedure to address its objectives. Figure 1 provides a representation of the method employed in the study. The first phase comprised preliminary data gathering which included online research and formulation of research instruments. Development of the questionnaire, designing of the survey, and ethics review were accomplished during the first phase of the research. The study was extensively reviewed and approved by the University of the Philippines Visayas' research ethics board prior to the data collection phase. This study, therefore, complies with the Data Privacy Act of 2012 (Republic Act no. 10173) of the Philippines, ensuring the protection and privacy of the chosen respondents' personal and private data. Moreover, informed consent was included in the finalized draft of the online questionnaire, and the data was anonymized on the platform to maintain the utmost confidentiality. The developed questionnaire was pilot-tested on 13 respondents to establish its reliability in capturing the necessary information. To show the reliability, validity of the results, and internal consistency of the survey questions, Cronbach's Alpha was employed. The pre-test analysis

showed a Cronbach's Alpha of 0.954, suggesting high internal consistency and reliability of the results gathered from the survey questionnaire. The second phase involved data collection where the survey questionnaires were administered to 80 respondents made up of startup enterprises in Western Visayas, Philippines-using the online platform Qualtrics. A purposive sampling technique was employed to identify and ensure that participants were employees, owners, or partners of startups with knowledge of digital transformation. Each respondent was sent a private link to access the survey, spending approximately 12.6 minutes completing the online survey on Qualtrics. The respondents engage in different industries and sectors such as academe/education, accommodation and hospitality, agriculture, arts, recreation and entertainment, construction, digital marketing/consultancy, food and beverage, financial/insurance services, gaming and digital arts, logistic/delivery and transportation, manufacturing, real estate, retail trade, software/IT services, travel and leisure, and wholesale. Data processing, analysis, and interpretation comprised the study's final phase. The data from Qualtrics was exported in both .xlsx and .sav format to ensure compatibility with both Microsoft Excel and SPSS. Data coding and cleaning were done using Microsoft Excel, while descriptive analysis was accomplished using IBM SPSS ver. 26 to analyze the results.

Figure 1. Methodology

3. RESULTS AND DISCUSSION

The study presents how startups in Western Visayas, Philippines, benefitted from digital transformation while dealing with the COVID-19 pandemic through the viewpoint of respondents involved in different economic sectors and industries. When asked about the changes they experienced during the pandemic, most of the respondents indicated that their sales declined, as shown in Figure 2. The drop in sales was notably prominent in sectors that chiefly rely on face-to-face customer interactions, such as food and beverage, accommodation and hospitality, and travel and leisure. This is in congruence with the experience of many restaurants, hotels, travel, and leisure industries in most areas of the world that suffered serious economic crises and severe decreases in demand amid the global pandemic [19]-[23]. Conversely, those that involve the use of digital platforms, such as gaming and digital arts, software/IT services, digital marketing, and consultancy, observed an increase in sales during the pandemic. This corroborates the findings of some studies depicting the positive effects of COVID-19 in some industries, especially those that depend on the digital economy and e-commerce [24], [25].

The changes brought about by the COVID-19 pandemic throughout the world, including in the Philippines, hastened the adoption of technologies that had been initiated for a long time, but which were inching at a snail's pace. Digital transformation has been pivotal for startups in the country, easing the limitations of the lockdowns and maintaining economic operations. As deduced from the survey, startup companies in Western Visayas embraced digital transformation through the adoption of its different categories: technology, management, and people can be seen in Table 1. Various forms of digital technology have been employed by the respondents, with social media (14.60%) and mobile devices (12.41%) leading the rank. This reliance on social media and mobile devices has also been observed in many startup businesses, rooted in the effectiveness of these tools in allowing entrepreneurs to connect with prospective clients and communicate with customers [26], [27]. Social media also serves as a valuable and economical medium to promote and advertise a business, raise brand awareness, understand consumer behaviors and preferences, and establish brand and client engagement [28], [29].

Under the management category, startups have adopted digital technologies to enhance business models, organizational culture, and strategies. Changes in both business models and organizational culture have been noted by 14.42% of the surveyed startups, indicating a focus on innovation and adapting to changing market trends. Extant literature suggests that digital transformation has a pronounced influence on

different facets of enterprises, including the companies' business models, by introducing new forms of cooperation between firms, new forms of relationships with clients and employees, and the creation of new products and service offerings [30]. Organizational cultures can also be significantly improved by digital transformation through the utilization of collaborative, cloud-based tools and platforms. Digital technologies facilitate effectual communication among diverse groups, departments, and geographically dispersed sites, thereby increasing openness, improving efficiency, productivity, and decision-making processes, and dismantling established hierarchies within an organization [31].

In the people category, the respondents have adopted digital technologies to empower customers, employees, and executives. Customers have been empowered through digital technologies, with an adoption rate of 18.90%. Employees/workforce/people have been empowered through digital technologies, with an adoption rate of 14.17%. This can include digital training programs, collaboration tools, and employee engagement platforms. Executives have also been empowered through digital technologies in the form of digital dashboards, analytics tools, and real-time reporting. Overall, the organization has embraced a range of digital technologies in different categories to drive innovation, improve operational efficiency, and enhance customer and employee experiences.

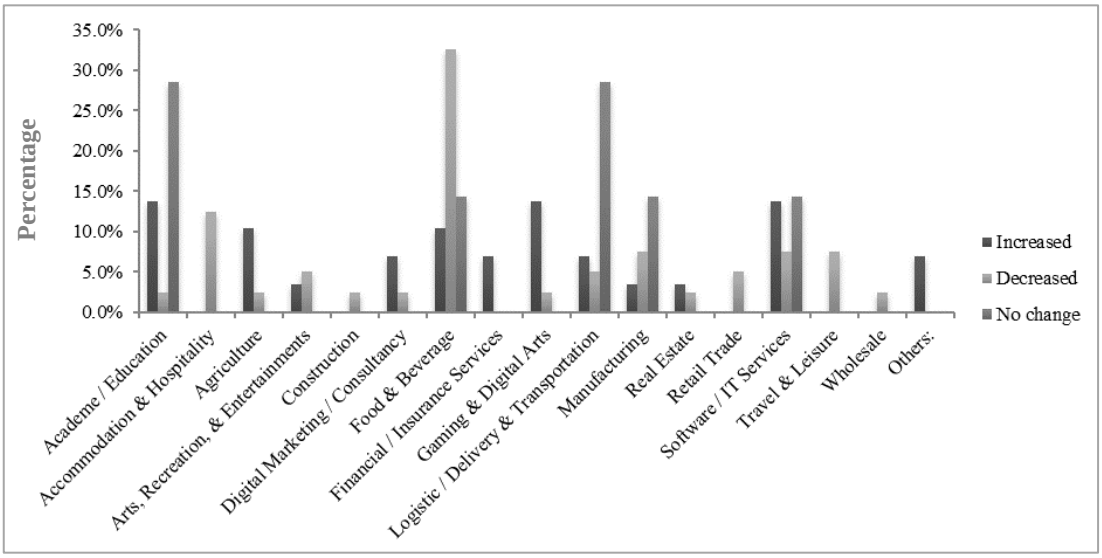

Figure 2. Changes in the sales of various startup industries in Western Visayas during the COVID-19 pandemic

Table 1. Categories of digital technologies adopted by startups in Western Visayas

No	Digital technologies adopted-technologies category	%	Digital technologies adopted-management category	%	Digital technologies adopted-people category	%
1	Social media	14.60%	Business models	14.42%	Customers	18.90%
2	Mobile devices	12.41%	Organizational culture	14.42%	Employees/workforce/people	14.17%
3	Data	8.76%	Strategies	13.46%	Executives	9.45%
4	E-commerce	8.76%	Operational processes	10.58%	Owners	8.66%
5	E-booking and orders	7.30%	Products	10.58%	Partners	8.66%

Startups in Western Visayas employ an array of digital platforms to promote their enterprises, as depicted in Figure 3. Social media emerged as the topmost medium (93.25%) used by the respondents to advertise their products and services. This essentially substantiates the importance of social media as a cost-effective channel to promote businesses, reaching millions of customers globally and allowing for direct communication between companies and their clients [27], [32]. Following social media, 73.0% of businesses use their website for promotion, while 67.6% utilize mobile platforms. E-mail is also a popular choice, with 58.1% of businesses using it for promotion. Other platforms used by the startups were online public relations, video marketing, instant messaging, display ads, affiliate marketing, and paid search (search engine marketing (SEM)), among others.

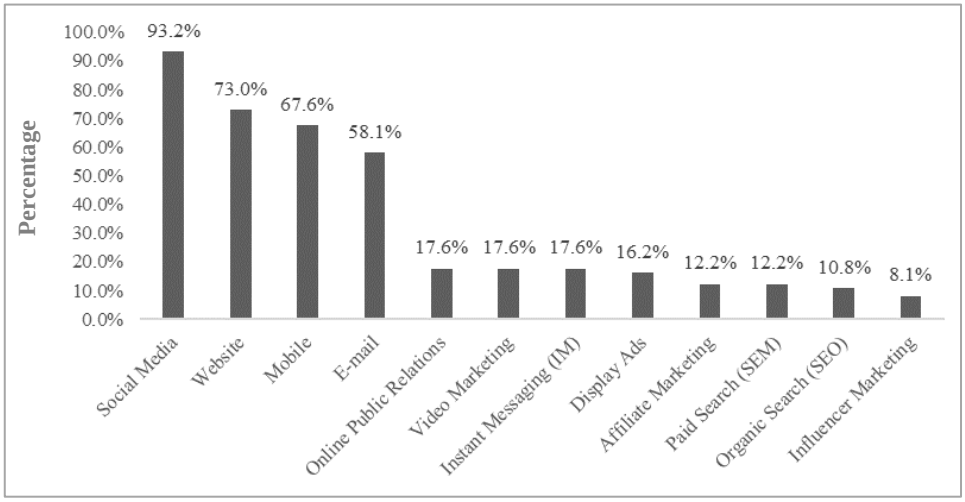

Figure 3. Digital platforms used by startups in Western Visayas to promote business

Figure 4 provides a graphical depiction of the digital transformation strategies prioritized by the startups at the height of the COVID-19 pandemic. Results show that starting ventures gave precedence to financial technology during the epidemic, attaining a 75.7% priority level. The use of financial technology, characterized as the application of digital platforms or services for financial transactions, markedly accelerated in many parts of the world, including the Philippines, as face-to-face interactions were put to a halt. Electronic payments and online financial transactions became notably popular when lockdowns, suspension of classes, and work-from-home arrangements were imposed, enabling micro, small, and medium enterprises to remain economically viable despite the repercussions of COVID-19 in other sectors and industries [33], [34]. The use of social media and app marketplaces was also deemed essential during the global epidemic, obtaining 74.3 and 67.1% priority levels, respectively. As demonstrated in many studies, social media is viewed as a conducive platform to disseminate information, advertise products or services, and an agent to promote sales, given its expansive reach to many users across the globe [35], [36]. During the lockdowns and restrictions in mass movements, the app marketplace has dramatically helped consumers secure their necessities and purchase products with the use of the internet. For businesses and retailers, the app marketplace has also been beneficial in allowing continued commercial operations and the acquisition of new revenue streams amidst the COVID-19 pandemic [37]. Collaboration tools such as Zoom and Google Drive, as well as e-commerce and work-from-home connectivity, were also among the strategies considered by startups when adopting digital transformation during the progression of the global epidemic.

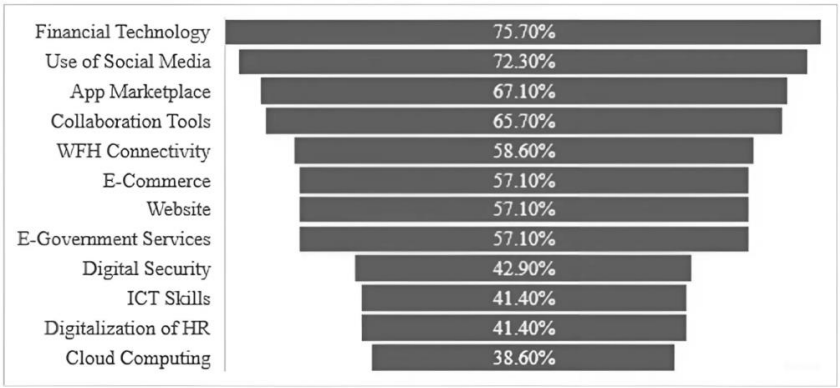

Figure 4. Summary of startups' priority level for digital transformation during COVID-19

4. CONCLUSION

Our findings indicate that the COVID-19 pandemic's arrival has increased the need for startup companies to embrace digital transformation as a way to ensure their continued existence and expansion. The present work exemplifies that startups in Western Visayas practiced digital transformation during the

COVID-19 pandemic. Furthermore, recent observations indicate that the crisis provided an excellent opportunity for startups to enhance the quality of their services and goods, enabling them to establish a variety of short and long-term strategies. Findings reveal that this phenomenon is linked to processes and technology-the critical components of the digital transformation. However, it should be noted that digital transformation is not just about implementing IT solutions. It is best to consider it in terms of "business models" and "organizational culture" in a broader sense. The concept of "people" becomes crucial in this context. It is evident that work-from-home connectivity, websites, e-commerce, digital security, e-government services, cloud computing, information and communication of technology (ICT) skills, social media, financial technology, app marketplaces, digitization of HR services, and collaboration tools are all important digital transformations during COVID-19. Prioritizing these transformations can help businesses and individuals adapt to the challenges posed by the pandemic and thrive in the digital era. As online presence became vital for startups during the pandemic, it is crucial to understand how businesses in Western Visayas managed their social media reach and utilized data analysis to enhance their online marketing strategies. By filling in the identified research gaps, it will offer insightful information that can help local startups, policymakers, and organizations that support small businesses create practical plans to deal with unforeseen disruptions like the COVID-19 pandemic and promote sustainable growth in the digital age. Future research may investigate various strategies tailored to different industries and market conditions, as well as practical ways to optimize them. Analyzing the effects of emerging technologies, government policies, and organizational factors could offer valuable guidance for startups in navigating digital transformation.

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