

Examining the effect of E-commerce adoption on the Performance of microentrepreneurial ventures through food delivery apps

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Abstract

Electronic commerce presents a wide array of benefits and opportunities to businesses; however, data revealed that firms in Lipa City have a low rate of adopting e-commerce due to apprehension and resource constraints. The study sought to uncover how electronic commerce adoption through food delivery applications affects the performance of beverage vendors in Lipa City. Additionally, the study aimed at the creation of a program for technological advancement that will aid in adopting and commercializing e-commerce in Lipa City through the utilization of delivery applications. This research used a descriptive-causal research design and total enumeration sampling to survey all 105 beverage merchants on Foodpanda and Grab Lipa. The effect of each dimension of electronic commerce adoption on the performance of microbusinesses in Lipa City was specifically assessed using simple linear regression. Notably, the study evaluated the strategic alignment of the entrepreneurial sector with regard to the adoption of e-commerce and its effects on the performance of microentrepreneurial ventures. The results showed that all four aspects of e-commerce adoption, including computer infrastructure, ICT processing power, information storage, and service delivery significantly affect performance, the dependent variable. With that, a training program for e-commerce adoption was recommended by the researcher to promote the study's results among microbusinesses. The program wanted to encourage and show how adopting e-commerce may boost a company's performance with proper operational strategies.

Keywords: e-commerce; computing infrastructure; ICT; microentrepreneurial ventures

1. Introduction

1.1. Background of the Study

E-commerce has been rampant and a growing necessity for adoption has been brought up in different local and international marketplaces. The adoption of e-commerce is growing globally as it enables businesses to become more efficient and acquire a competitive edge (Alzaabi et al., 2021). According to several reports, e-commerce is one of the industries with the quickest growth rates, and the 2020 pandemic did not stop it from expanding (Lamudi Philippines Inc., 2019). According to Alzahrani (2018), the growth of e-commerce, which has made local and international marketplaces extremely competitive, presents a challenge to many SMEs in Saudi Arabia and around the world, necessitating the need to adapt to these dynamic changes to overcome obstacles and compete. With booming internet users and digital opportunities, businesses use e-commerce

platforms to conduct business operations. The core concept of e-commerce is the exchange of goods and services between buyers and sellers over the internet, including sharing information, systems, and resources (Bigcommerce, 2022). In the Philippines, e-commerce has been considered to impact its economic growth substantially. As stated by the Department of Trade and Industry, it is seen as a powerful tool and the quick path to sustained, rapid development (Talavera, 2022). In Lipa City in 2019, e-commerce is evident in the emergence of food delivery applications such as Foodpanda and Grab. Foodpanda and Grab app are two of the top e-commerce platforms in Lipa City that have benefited from the pandemic's rise.

E-commerce adoption have been identified to have dimensions such as computing infrastructure, ICT computing skills, information storage, and service delivery. All these dimensions have been identifier of how a business or organization adopts to the emerging growth of electronic commerce that affects the performance of microbusinesses. Computing infrastructure in this study refers to the computer hardware (computer, laptop, tablet, and other gadgets), software (application or programs), and system (networks and internet) used to perform the business operation. On the other hand, ICT computing skills is about the necessary skills, talents, and abilities obtained from training, seminar, and experience that helps in operating the available technology present in the business. Next, information storage is the method and technique of accessing and storing information vital to the operation of the business. Lastly, service delivery as the last dimension refers to the use of social media applications to communicate, advertise and provide e-commerce services for overall business and customer satisfaction. These dimensions affect the performance of microbusinesses which was measured through profitability and market growth.

Due to rising customer demand and trends, the number of microentrepreneurial ventures is beginning to increase. As of 2020, the Philippine Statistical Authority (PSA) estimated that 957,620 business companies were functioning in the Philippines, which have been dominated by microenterprises accounting for 88.71% (850,127) of all operating businesses (Isip, 2022). In this study, microentrepreneurial ventures serve as a complete representation of start-ups, micro-businesses, and microenterprises through the beverage merchants. Microentrepreneurial ventures in this study refer to microbusinesses that have typically lower start-up costs and sell products and provide services to generate income. One of the micro-businesses in the Philippines are beverage merchants, a type of business that is very prevalent in the country, and thus considered as one of the fastest-growing business with minimal cost (Manalo, 2022). Given that people prefer the cold and hot drinks that are offered for sale, such as milk teas, coffee, smoothies, carbonated drinks, and others, beverage merchants are most prevalent in Lipa City. Beverage merchants in this study refer to businesses that sell a range of consumable drinks, such as juices, sodas, smoothies, and teas in the Foodpanda and Grab applications. In Lipa City, businesses particularly the microbusinesses are hesitating to adopt e-commerce due their lack of confidence in digital selling, limited financial, and technological resources to run online business transactions. Out of 6,994 trading and retail microbusinesses registered on Department and Trade Industry (DTI), only 139 beverage microbusinesses in Lipa City have participated in the Grab and Foodpanda food delivery apps. During the COVID-19 epidemic, most businesses were able to digitalize their operations, but most of the micro, small, and medium-sized businesses (MSMEs) found it challenging to keep up with the demands of technology (Raj, 2022). The community has experienced this issue, and more research is required to provide a better and more appropriate remedy. Although majority of the city's microentrepreneurial ventures are slowly adopting digitalization, rivals are putting e-commerce platform technologies in place more quickly. Every firm, no matter how large or small, must adapt to the fierce competition and rapidly developing digital market trends to meet consumer demand and needs.

Numerous studies are being published and released to better understand the connection between e-commerce and business performance because of the widespread increase in internet users. This research aims to examine the adoption of e-commerce platforms among the microentrepreneurial ventures of food delivery applications Lipa City and recognize its effect on their performance. While there has been an increasing number of studies on the adoption of electronic commerce and its impact on business performance, the context of this study was mainly focused on microentrepreneurial ventures. Only a few researchers have explored and examined electronic commerce adoption and its impact on business performance, specifically on microentrepreneurial ventures in Lipa City. Since the goal of every business is to expand, using digitalization is a great way to achieve it. The proposal arises out of the need for digitalization and upscale business performance. This research is geared toward Sustainable Development Goals 8 and 9. Through technical advancement and innovation, Goal 8—Decent Work and Economic Growth—is addressed by this study through the aid in creating jobs and ease work. Significantly, the study would help microentrepreneurial enterprises by providing a clear picture of the potential of using electronic commerce to achieve market growth and increased profitability. Goal 9, which focuses on industry, innovation, and infrastructure, is another goal anchored in this research through increased research and upgraded industrial technologies set for 2030. This study may help the Philippines, one of the developing countries, by implementing a program, to upgrade and utilize technical innovation and improvement. As a start-up business, microentrepreneurial ventures must be informed and transformed by the significant benefits of using e-commerce platforms. The digital way of doing business is a need, especially in the rise of the pandemic. The growing competition, most especially the digital market growth, requires innovative practices and techniques for every business in the competitive business arena. With the rising trend of digitalization and online marketing, people today prefer digital marketplace or e-commerce to buy commodities. Most studies claim that information and communication technology (ICT) positively and significantly impacts business through increased communication, lower production costs, and higher productivity (Toader et al., 2018). Given the rising number of internet users, businesses should use this opportunity to reach the digital market to cater to more prospects and customers and improve their business performance. As the business continues to expand, digital transformation is a must because it has been one of the trending ways for income generation and maximization. As e-commerce expands, current technology offers several benefits and opportunities with e-commerce platforms, which are the way of the future for businesses (Smith, 2019).

1.2. Research Frameworks

Figure 1 below showed the conceptual framework that was adopted from the research of Edwin Orori (2021) on Electronic Commerce Adoption and Performance of Small and Medium Enterprises in Murang'A County, Kenya. The framework showed the different concepts of the study and the established relationships. It demonstrated the independent variables: computing infrastructure, ICT computing skills, information storage, and service delivery which were the dimensions of technology adoption. Each independent variable has attributes that has built and defined the concept being discussed. The framework has been derived from the five theories that support and explain the factors, benefits, and principles of the adoption of technology, which include the Technology Organization Environment Model (TOE), Unified Theory of Acceptance and Use of Technology (UTAUT), Perceived Organizational E-Readiness (POER), Theory of Planned Behavior (TPB), and Technology Acceptance Model (TAM).

Computing infrastructure included attributes such as computer hardware, computer software, and internet connectivity which was about the availability of a computer, system, and internet connection in electronic commerce. An essential theory in examining computing infrastructure as an indication of e-commerce adoption is the TOE (Technology Organization Environment) Model, which examines internal and external elements that

can affect the adoption of e-commerce. Under the ICT Computing skills, the characteristics were the following: user experience, level of training, and technical skills, which were the necessary skills needed and available for the use of e-commerce platforms. ICT computing skills was backed up by the UTAUT (Unified Theory of Acceptance and Use of Technology) Model which focuses on using ICT computing skills and users' behavioral patterns towards the adoption of technology in the business. Information storage included the qualities such as cloud computing, software service, and information security which was about the access and availability of information in e-commerce services. Information storage comes from the POER (Perceived Organizational E-Readiness) theory which explains how different businesses have used information storage as a component of technology adoption in e-commerce. Lastly, the service delivery consisted of features such as delivery cost, delivery speed, and positive commentaries from other buyers, which referred to communication, social media, and the delivery system needed for e-commerce services. In a study, the TAM (Technology Acceptance Model) and TPB (Theory of Planned Behavior) were merged to understand better the critical drivers of users' inclination to utilize food delivery applications (Troise et al., 2020). On the other hand, the dependent variable was the performance of SMEs. The adoption and use of internet-related technologies and their impact on performance can be evaluated using the TAM and TPB model combined. Business performance based on the framework was measured in terms of profitability and market growth. The framework was vital in demonstrating the relationship and effects of the variables presented in the study.

Orori conducted research among Kenyan SMEs, and the results suggested that computing infrastructure, ICT computing skills, information storage, and service delivery positively and significantly affect the adoption and performance of SMEs in Kenya. Also, the results of the study found that computing infrastructure and ICT computing skills have a strong relationship with the performance of SMEs. However, both information storage and service delivery have been found to have a weak relationship with the performance of SMEs. Moreover, data analysis revealed that e-commerce adoption significantly impacts SMEs' performance through business growth and profitability.

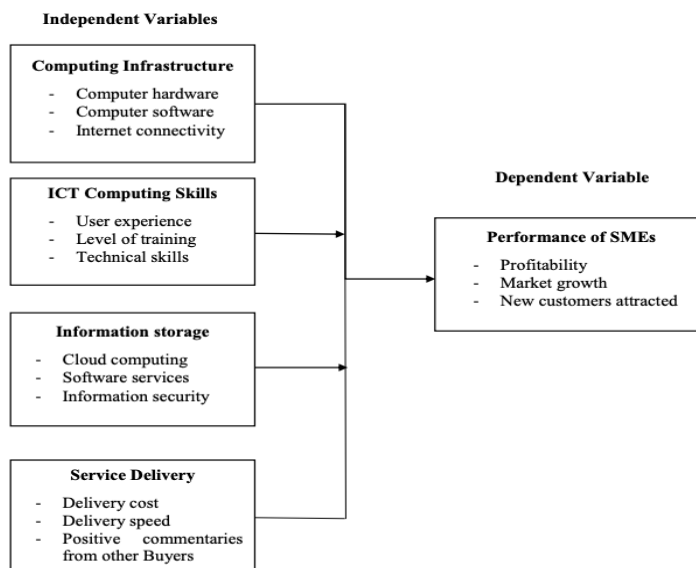


Figure 1. Conceptual Framework

Source: Electronic Commerce Adoption and Performance of Small and Medium Enterprises in Murang'A County, Kenya (Orori, 2021)

The operational framework adopted the conceptual framework to determine whether, contextualized in microentrepreneurial ventures in Lipa City, business performance was affected by the same factors. Specifically, the framework was used to study the business performance of beverage merchants of Foodpanda and Grab in Lipa City as a representation of microentrepreneurial ventures affected by electronic commerce adoption. The researcher adopted the framework to clearly discuss how computing infrastructure, ICT computing skills, information storage, and service delivery effect the performance of micro-businesses in the Philippine context. The operational framework that was used is the same as the conceptual framework; the only difference is that the previous study by Orori used this to study the performance of Kenyan SMEs, but this study used the framework in Philippines microbusinesses. Using this framework in this study, the researcher has concluded which among the independent variables contributes and has the most significant effect on the performance of beverage merchants of Foodpanda and Grab in Lipa City. Through the help of the framework, the researcher had arrived at a conclusion that can be compared to the same study and industry. The study was guided by the operational framework illustrated in Figure 2.

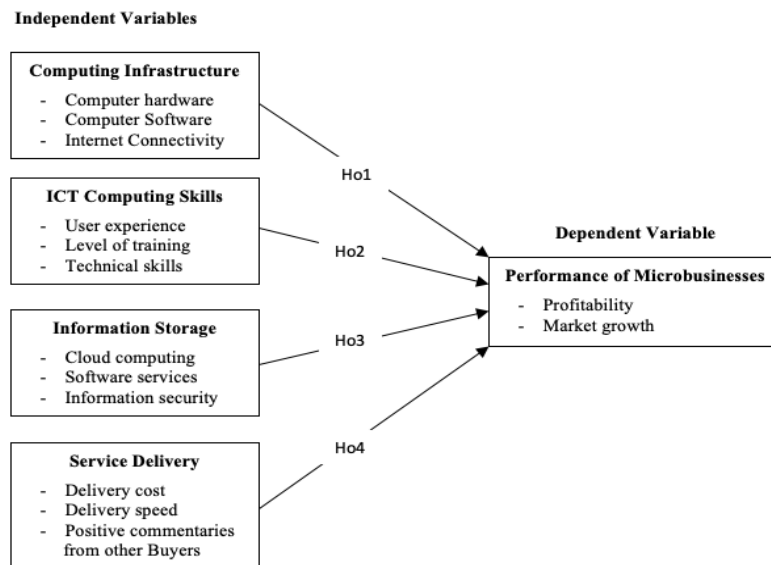


Figure 2. Operational Framework

1.3. Objectives of the Study

The general focus of this research was to know the effect of electronic commerce adoption on the performance of beverage merchants in Foodpanda and Grab in Lipa City. Precisely, the study aimed:

1. To determine the perceptions of the respondents on the dimensions of e-commerce adoption and performance of microbusinesses; and
2. To determine if computing infrastructure, ICT computing skills, information storage, and service delivery significantly affect the performance of microentrepreneurial ventures in Lipa City.

1.4. Hypotheses

Aligned with the research focus of the study, the following hypotheses were tested:

H₀₁: Computing infrastructure does not significantly affect performance
 H₀₂: ICT Computing Skills do not significantly affect performance
 H₀₃: Information Storage does not significantly affect performance
 H₀₄: Service Delivery does not significantly affect performance

2. Materials and Methods

2.1. Research Design

This study has employed a quantitative research design. Specifically, it used a descriptive and causal design to examine the relationship between the performance of beverage merchants of Foodpanda and Grab's adoption of electronic commerce. The method has focused on the study's objectives and the cause-and-effect relationship of each variable. This study adopted a descriptive research design to systematically describe the characteristics of a population, situation, or phenomenon. Causal research was used by the researcher to look at the effect of a variable on one another and to quantify the effect that a change to its present situation will have on the better performance of the business. Additionally, a causal research design was used to determine whether changes in one of the independent variables—the dimensions of e-commerce adoption—cause changes in the dependent variable, which is the performance of microbusinesses. The descriptive and causal design was vital to gain insights about the subject of the study and to define the relationships within the variables.

2.2. Locale of the Study

The study was conducted in Lipa City since it is part of CALABARZON which was one of the top five places with the most MSMEs operations and microbusinesses has taken the majority portion. Also, the microentrepreneurial ventures in Lipa City will provide solution addressing the problem of lack of e-commerce adoption and help the business grow and become competitive.

2.3. Respondents of the Study

A survey was designed to gather data from the owners and managers of beverage merchants of Foodpanda and Grab in Lipa City that provided a complete explanation of the research topics and objectives. The respondents of this study were the owners and managers of the business because they have a sufficient amount of knowledge and experience on how technology works in the business, together with the different terminologies used to describe it. Also, the selected respondents have adopted e-commerce through the application of Foodpanda and Grab in their business, where they have been well-acquainted and informed of information communication technology. Hence, a survey was intended to collect information with a detailed account of research objectives and questions through microentrepreneurial venture owners and managers on how the four independent variables affected the dependent.

2.4. Sampling Design

The researcher has adopted a total enumeration technique to collect the data for the study. The respondents of this study were selected based on the characteristics and qualifications set to administer the survey questionnaire and collect supplement data needed for this study. The total number of beverage vendors actively engaging in the Foodpanda and Grab applications, or 139 samples, served as the sample size for this study.

However, only 105 of the 139 returned surveys have been filled out completely, giving a response rate of 75.53% and a confidence level of 95%.

2.5. Research Tools and Instruments

The research instrument was adapted from the study entitled "Electronic Commerce Adoption and Performance of Small and Medium Enterprises in Murang'A County, Kenya" by Edwin Orori (2021). The survey questionnaires had a total of twenty-four (24) questions. Table 1 below showed the questionnaire specification wherein the number of items per variable is displayed. The questionnaire was answered using five-point Likert scale which are as follows: (1) Strongly Disagree; (2) Disagree; (3) Neutral; (4) Agree; and, (5) Strongly Agree.

Table 1. Questionnaire Specification

| Part | Variable | Item No. |
|------|--------------------------|----------|
| I. | Computing Infrastructure | 1 to 4 |
| II. | ICT Computing Skills | 5 to 9 |
| III. | Information Storage | 10 to 14 |
| IV. | Service Delivery | 15 to 19 |
| V. | Performance of SMEs | 20 to 24 |

The instrument has undergone a reliability test to determine the level of internal consistency using Cronbach Alpha. The result showed that Cronbach's Alpha coefficient that is closer to 1.00, the greater the consistency of all the items in the scale. The survey questionnaire passed the reliability test for the variables, namely computing infrastructure, ICT computing skills, information storage, service delivery, and performance of microbusinesses with a Cronbach Alpha of .822, .842, .888, .899, and .782, respectively.

The survey was conducted online and on paper. Responses in the questionnaires were tabulated, coded, and processed using a Statistical Package for Social Science (SPSS) program to analyze the data collected.

2.6. Data Analysis and Interpretation

The data was examined using the following statistical tools:

Descriptive Statistics

This study utilized descriptive statistics to present the data in a meaningful and understandable summary of information. The descriptive statistics of this study have focused on the mean, which that had helped to determine the general trend of data gathered from each question. Mean and frequency distribution helped in the summary of respondents' perception of all the variables. The interpretation of the variables was shown in Table 2.

Table 2. Mean Scale Interpretation

| Range | Response Category | Computing Infrastructure | ICT Computing Skills | Information Storage | Service Delivery | Performance |
|-----------|-------------------|---|--|--|--|---|
| | | Interpretation | Interpretation | Interpretation | Interpretation | Interpretation |
| 4.21-5.00 | Strongly Agree | Strongly Agree on the availability of computer hardware, software, and systems | Strongly Agree on having technical skills, trainings, and experiences | Strongly Agree on accessibility and availability of information | Strongly Agree on the availability of e-commerce communication and services | Strongly Agree that e-commerce increases profits and markets |
| 3.41-4.20 | Agree | Agree on the availability of computer hardware, software, and systems | Agree on having technical skills, trainings, and experiences | Agree on accessibility and availability of information | Agree on the availability of e-commerce communication and services | Agree that e-commerce increases profits and markets |
| 2.61-3.40 | Neutral | Neutral on the availability of computer hardware, software, and systems | Neutral on having technical skills, trainings, and experiences | Neutral on accessibility and availability of information | Neutral on the availability of e-commerce communication and services | Neutral that e-commerce increases profits and markets |
| 1.81-2.60 | Disagree | Disagree on the availability of computer hardware, software, and systems | Disagree on having technical skills, trainings, and experiences | Disagree on accessibility and availability of information | Disagree on the availability of e-commerce communication and services | Disagree that e-commerce increases profits and markets |
| 1.00-1.80 | Strongly Disagree | Strongly Disagree on the availability of computer hardware, software, and systems | Strongly Disagree on having technical skills, trainings, and experiences | Strongly Disagree on accessibility and availability of information | Strongly Disagree on the availability of e-commerce communication and services | Strongly Disagree that e-commerce increases profits and markets |

Regression Analysis

Regression analysis was used in the study to test the hypotheses. The data has been recorded in Microsoft Excel then regression analysis was carried out using the SPSS. The researcher closely monitored the p-value to determine the relevance of the results. The validity of the provided null hypothesis was assessed using the p-value. P-values were considered significant if they are less than or equal to 0.05 because doing so helped the researcher successfully reject the null hypothesis. They were only considered significant if they are higher because doing so will make it possible for the researcher to reject the null hypothesis successfully.

2.7. Ethical Considerations

The researcher used ethical principles in the execution of the study to ensure that all the data that were obtained were treated with secrecy. The owners/managers of beverage merchants of Foodpanda and Grab in Lipa City were approached for permission to conduct the study and to collect primary data. The researcher contacted the respondents by email or phone calls to request their involvement in the research survey. The respondents were forcibly coerced into offering sensitive information. Each respondent has received an email and a letter outlining the study's objectives. Thus, it had shown the study's objectives, and that information provided by the respondents was for research purposes. The respondents were allowed to write their names down or remain anonymous when the survey was conducted. The respondents' opinions and all other relevant information were handled with the utmost confidentiality. As for implementing the program upon getting a practical result of electronic commerce adoption on business performance, microentrepreneurial ventures will not be forced to participate. The program that will be created will help in promoting awareness and persuading e-commerce adoption among microbusinesses with the good intention of improving business performance. Willing entrepreneurs and participants of the program will be approached respectfully and in a coordinated and

participatory manner. Businesses contribute to the economy's expansion; therefore, encouraging new approaches with the proper code of conduct should be practiced upon the implementation and pursuance of the program.

3. Results and Discussion

The results, analysis, and interpretation of the data on how e-commerce adoption among microbusinesses in Lipa City affect their performance are presented in this part. The data collection and subsequent data analysis were driven by several variables on how microbusinesses implemented computing infrastructure, ICT computing skills, information storage, and service delivery to analyze its impact on performance. Tables and figures that summarize the study's findings were used to present the results.

3.1. Descriptive Statistics

Table 3 shows that the respondents of the study strongly agree on the items of computing infrastructure, ICT computing skills, information storage, service delivery, and performance with an average mean score of 4.38 and a standard deviation of 0.60. The standard deviations for each item, ranging from 0.59 to 0.63, suggest that the responses are relatively consistent and not widely dispersed, indicating a degree of agreement among the respondents.

For the computing infrastructure, the respondents of the study strongly agree that computing infrastructure with the use of computer hardware, software, and system influence the adoption of e-commerce among microbusinesses. It has demonstrated a strong degree of agreement with the mean score of 4.43 and standard deviation of 0.59. The standard deviations for each item range from 0.55 to 0.62, suggesting that the responses are relatively consistent and not widely dispersed, indicating a degree of agreement among the respondents. This was supported by the study of Quireroz et al. (2020) revealed that as businesses invest in computing infrastructure, the ability of IT administrators to boost performance becomes increasingly important for business units and the company. According to Were (2021), to be more effective, productive, and successful in today's market, businesses rely on the strength of computing infrastructure for every element of their everyday operations.

In ICT computing skills, the respondents have demonstrated a strong level of agreement through training, seminar, and experience in the conduct of business operations. It has been shown that there was a strong degree of agreement with the mean score of 4.34 and standard deviation of 0.60. The mean score for the ICT computing skill ranges from 4.29 to 4.41, indicating a consistent "Strongly agree" sentiment. Also, the standard deviations for ICT computing skills range from 0.56 to 0.63, which suggested that the responses are relatively consistent and not widely dispersed, indicating a degree of agreement among the respondents. The results were consistent with the survey carried out by Orori in 2021, which produced a high level of agreement in responses regarding respondents' experiences with e-commerce platforms and examined training on the use of systems in their businesses. It was also supported by the study findings of Okoye (2018) which showed that in an effective entrepreneurship practice, knowledge of ICT computing technologies including databases, spreadsheets, digital cameras, and computer security and network are attracting a lot of development.

For information storage, the respondents of the study strongly agree that they have access to sufficient information on the adoption of e-commerce among microbusinesses. The table demonstrated a strong degree of agreement with the mean score of 4.37 for information storage and a standard deviation of 0.59. The standard

deviations for the information storage, range from 0.56 to 0.62, which suggested that the responses are relatively consistent and not widely dispersed, indicating a degree of agreement among the respondents. This supports Seagate's research on 3,000 SMEs, which has proven that the use of data storage and maintenance is important for long-term success (Caldwell, 2020). Also, a study by Aniq (2023) revealed that information storage is used by organizations to create strategic plans and make decisions for the longevity and development of the firm.

In service delivery, the respondents have a strong level of agreement on various aspects of service delivery on the e-commerce adoption on the conduct of microbusiness operations. Service delivery demonstrated a strong degree of agreement with a mean score of 4.43 and a standard deviation of 0.59. Across the different items assessed for service delivery, the mean scores range from 4.39 to 4.50, indicating a consistent "Strongly agree" sentiment. The standard deviations for each item on service delivery ranging from 0.50 to 0.63 suggested that the responses are relatively consistent and not widely dispersed, indicating a degree of agreement among the respondents. This was assisted by the study of Vilfan et al. (2018) conducted in Albania which reported that most service delivery strategies and procedures are in place and implemented aimed at decreasing administrative costs. Likewise, the study conducted by Seyitoglu and Ivanov (2020) found that resources, activities, stakeholders, and the external macroenvironment must all be considered when building a system for delivering services since they can affect how practical the designs are for achieving desired business results.

In terms of performance, there is a strong level of agreement among respondents. Across the items assessed on performance, the mean scores range from 3.97 to 4.53, indicating a predominantly "Strongly agree" sentiment. The table demonstrated a strong degree of agreement on performance with a mean score of 4.32. In a study conducted by Fernandez et al. (2021), it was found that the likelihood of survival and success is increased when choosing e-commerce ventures. However, the overall standard deviation of 0.63 indicates a moderate level of agreement among the respondents. The standard deviations for each item, ranged from 0.54 to 0.79, suggesting varying levels of dispersion in responses. While there may be some variation in agreement levels for specific items, the overall sentiment is strongly positive.

Table 3. Descriptive Statistics

| Item | Mean | Std. Deviation |
|--------------------------|------|----------------|
| Computing Infrastructure | 4.43 | 0.59 |
| ICT Computing Skills | 4.34 | 0.60 |
| Information Storage | 4.37 | 0.59 |
| Service Delivery | 4.43 | 0.59 |
| Performance | 4.32 | 0.63 |

3.2. Regression Analysis

Table 4 shows that computing infrastructure significantly affects performance. This means that the greater adoption and implementation of e-commerce through computing infrastructure, the greater the performance of the business. Computing infrastructure is a significant predictor of performance given the p-value of 0.001. This indicates that an increase in the availability and use of electronic devices, software, applications, and the internet may improve business performance. Additionally, a lack of computing infrastructure within the organization may be a sign of and contributor to low business performance. The study by Hou (2019) findings showed that computing infrastructure flexibility and integration have a beneficial, and positive impact on organizational performance. Also, the coefficient value of 0.678 indicates that an increase in the availability of computing

infrastructure is associated with an increase in performance. The adjusted R square value of 0.454 indicates that approximately 45.40% of the variation in performance can be explained by the effects of the availability of computing infrastructure. Table 4 also shows that the model was appropriate in forecasting the performance of microbusinesses given the f-value of 87.434. The table also displays a p-value of 0.001 lower than the significance level of 0.05, indicating that the whole model was meaningful in predicting the association between computing infrastructure and performance.

Table 4. Effect of Computing Infrastructure on Performance

| | | Unstandardized Coefficients | | Standardized Coefficients | | | |
|------------------------------------|--------------------------|-----------------------------|------------|---------------------------|-------|---------|----------------|
| Model | | B | Std. Error | Beta | t | p-value | Interpretation |
| 1 | (Constant) | 1.118 | .345 | | 3.241 | .002 | |
| | Computing Infrastructure | .722 | .077 | .678 | 9.351 | .001 | Significant |
| R ² = 0.454 | | F-value= 87.434 | | p-value= 0.001 | | | |
| a. Dependent Variable: Performance | | | | | | | |

Table 5 demonstrates that ICT computing skills significantly affects performance. Therefore, the more ICT computing abilities are used to execute e-commerce, the better the business will perform. Given the p-value of 0.001, ICT computing skills is a strong predictor of performance. This indicates that having the appropriate knowledge, skills, and abilities acquired via education, seminars, and experience that aid in using the available technology present in the company has a significant impact on business performance. Importantly, lack of necessary ICT skills to operate the available technology could have an adverse impact on the way business performs. This was supported by the study conducted by Her, Amad, and Hee (2020), in their study of organizational capability, ICT support skills, and the performance of SMEs, they discovered that Malaysian SMEs will perform well provided they have the required information and technology skills and IT knowledge. Also, the coefficient value of 0.591 indicates that an increase in ICT computing skills in the business is associated with an increase in performance. The adjusted R square value of 0.343 indicates that approximately 34.30% of the variation in performance can be explained by the effects having a knowledge on ICT computing skills in the business. Table 5 also shows that the model was appropriate in forecasting the performance of microbusinesses given the f-value of 55.226. The table also displays a p-value of 0.001 lower than the significance level of 0.05, indicating that the whole model was meaningful in predicting the association between ICT computing skills and performance.

Table 5. Effect of ICT Computing Skills on Performance

| | | Unstandardized Coefficients | | Standardized Coefficients | | | |
|------------------------------------|----------------------|-----------------------------|------------|---------------------------|-------|---------|----------------|
| Model | | B | Std. Error | Beta | t | p-value | Interpretation |
| 1 | (Constant) | 1.687 | .357 | | 4.720 | .001 | |
| | ICT Computing Skills | .608 | .082 | .591 | 7.431 | .001 | Significant |
| R ² = 0.343 | | F-value= 55.226 | | p-value= 0.001 | | | |
| a. Dependent Variable: Performance | | | | | | | |

Table 6 shows that information storage significantly affects performance. This means that the greater adoption and implementation of e-commerce through information storage, the greater the performance of the business. Information Storage is a significant predictor of performance given the p-value of 0.001. This means that having and using a system or method for obtaining and storing data that is essential to the business could

aid in enhancing its performance. A lack of information storage could cause the company to perform poorly. It has the same result of the study conducted by Orori and Kyalo (2021) which found that information storage has a positive and significant impact on performance giving the p-value of less than 0.05. Also, the coefficient value of 0.612 indicates that an increase in the availability of computing infrastructure is associated with an increase in performance. The adjusted R square value of 0.369 indicates that approximately 36.90% of the variation in performance can be explained by the effects of the availability of computing infrastructure. Table 6 also shows that the model was appropriate in forecasting the performance of microbusinesses given the f-value of 61.713. The table also displays a p-value of 0.001 lower than the significance level of 0.05, indicating that the whole model was meaningful in predicting the association between computing infrastructure and performance.

Table 6. Effect of Information Storage on Performance

| Model | | Unstandardized Coefficients | | Standardized Coefficients | | p-value | Interpretation |
|-------|------------------------|-----------------------------|------------|---------------------------|-------|---------|----------------|
| | | B | Std. Error | Beta | t | | |
| 1 | (Constant) | 1.263 | .392 | | 3.223 | .002 | |
| | Information Storage | .700 | .089 | .612 | 7.856 | .001 | Significant |
| | R ² = 0.369 | F-value= 61.713 | | p-value= 0.001 | | | |

a. Dependent Variable: Performance

Table 7 demonstrates that service delivery significantly affects performance. Accordingly, the better the business performs, the more e-commerce through service delivery is implemented. Given the p-value of 0.001, service delivery is a significant predictor of performance. The availability of social media applications for communication, advertising, and providing e-commerce services for overall business and customer satisfaction could, therefore, contribute to improving the performance of the company. The business' low performance could be caused by lack of service delivery. This was supported by the study of Olala et al. (2022) which found that service delivery has a strong positive and significant relationship with performance management. Also, the coefficient value of 0.706 indicates that an increase in service delivery in the business is associated with an increase in performance. The adjusted R square value of 0.493 indicates that approximately 49.30% of the variation in performance can be explained by the effects of having a knowledge on service delivery in the business. Table 7 also shows that the model was appropriate in forecasting the performance of microbusinesses given the f-value of 102.108. The table also displays a p-value of 0.001 lower than the significance level of 0.05, indicating that the whole model was meaningful in predicting the association between service delivery and performance.

Table 7. Effect of Service Delivery on Performance

| Model | | Unstandardized Coefficients | | Standardized Coefficients | | p-value | Interpretation |
|-------|------------------------|-----------------------------|------------|---------------------------|--------|---------|----------------|
| | | B | Std. Error | Beta | t | | |
| 1 | (Constant) | .815 | .349 | | 2.334 | .022 | |
| | Service Delivery | .793 | .078 | .706 | 10.105 | .001 | Significant |
| | R ² = 0.493 | F-value= 102.108 | | p-value= 0.001 | | | |

a. Dependent Variable: Performance

Overall, all the independent variables which are computing infrastructure, ICT computing skills, information storage, and service delivery are significant predictors of performance. With the tables shown above, it demonstrates that computing infrastructure, ICT computing skills, information storage and service delivery

have the same p-value of 0.001 but service delivery is the most significant predictor of performance, having the highest value of coefficient.

4. Conclusion and Recommendations

This study's findings do not support the null hypothesis, which states that computing infrastructure, ICT computing skills, information storage, and service delivery does not significantly affect performance.

Overall, all the dimensions of e-commerce adoption: computing infrastructure, ICT computing skills, information storage, and service delivery affect performance. With that, it can be concluded that the availability of electronic gadgets, the internet, skills, and service delivery in the conduct of the business can affect the business. Performance can be enhanced if organizations can concentrate more on these areas and expand on the use of service delivery given that it has the highest effect on the performance.

Based on the findings of this study, it can be recommended that microbusinesses in Lipa City should focus on service delivery through participating in food delivery systems to improve their performance in terms of profitability and market growth. The researcher has focused on creating a program on food delivery systems by collaborating with the local government and numerous food delivery partners. Microbusinesses are urged to take part in training sessions and seminars on the various food delivery partners' systems as part of a program called Rider in Tandem. The researcher will work with the local government to recruit the microbusinesses they are affiliated with to take part in this training program in order to successfully run this program. Since there is a local government organization with a focus on supporting microbusinesses and strong ties to them, they could be an important tool for the program's success. The researcher will, however, also seek assistance from several food delivery services, including Foodpanda, Grab, Toktok, Kuya Padala, Ala eh Express, and others, as they are fully aware of how the e-commerce adoption through food delivery system functions. These food delivery companies will be collaborated in the program together with the local government to ensure that the microbusiness could be knowledgeable of the importance of a food delivery system on improving their performance and as well as promote the study's results.

"Rider in Tandem" is the CAPSTONE project that is suggested based on the findings of this study. "Rider in Tandem" and "Riding in Tandem" are entirely unrelated to one another because the latter is about a food delivery system that is partnered with and developed in collaboration with businesses. Even though it can have a bad connotation, the researcher hopes that this CAPSTONE will turn the negative connotation into a positive meaning.

Acknowledgements

Immeasurable appreciation and deepest gratitude for the help and support extended to the following person who have contributed in making this study possible.

To the researcher's family and friends, for the financial and emotional support in the entire researcher's journey.

To Marvin Dave C. Laylo, the researcher's inspiration, for the endless love, care and support throughout the researcher's journey.

To MBA 20-01, the researcher's block section, for sharing ideas and laughter despite the tough experience.

To Dr. Edgar Allan G. Castro, the researcher's adviser, for the advices, valuable comments, and suggestions for the completion and success of the study.

To Dr. Nora M. Sarmiento, the researcher's statistician, for the data analysis and statistical computations.

To Dr. Erickson Martinez, Mr. Allan Pagsuyuin, MBA, and Mr. Dhing Patulot, MBA, the researcher's panelists for the untiring assistance and time in checking and reviewing the manuscript.

To Dr. Sheila E. Maloles, the researcher's teacher-in-charge, for the effort and guidance in sharing the necessary reading materials and lessons for the completion of the manuscript.

To Dr. Lanie M. Santos, the researcher's graduate program chair, for the words of encouragement and time given in checking the completion of the manuscript.

To Ms. Nerissa O. Lucasia, MMT, the researcher's college dean, for the time and effort given as a signatory for the completion of the manuscript.

Importantly, praises and thanks to God Almighty, for his showers of blessings throughout the researcher's journey.

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