



**The Effect of Electronic Commerce Applications on the  
Operational Performance of Startup Businesses**

**By**

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**Declaration**

I, Teshome Guangul, declares that this research paper is my original work and that all sources used in the research paper have been appropriately acknowledged. To the best of my knowledge and belief, the content of this research work has never before been presented for the award of a master's degree.

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**Certificate**

This is to certify that Teshome Guangul's research paper, entitled " The Effect of Electronic Commerce Applications on the Operational Performance of Startup Businesses" and submitted in partial fulfillment of the requirements for an MSc Degree in a master of science in management specialized in innovation management and entrepreneurship, complies with the university's regulations and meets the accepted standard for originality.

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## Abbreviations and Acronyms

EA .....	electronic Advertising
EB.....	Electronic business
EC.....	Electronic commerce
ECA.....	electronic commerce adoption
ECSS .....	electronic Customer Support Service
EDI.....	electronic data interchange
EFT.....	Electronic Fund Transfer
EM.....	electronic marketing
EOD.....	electronic Order and Delivery
EPS.....	electronic Payment System
i.e .....	id est or that is
ICT .....	information and communication technologies
IT.....	information technology
NSB.....	new start-up businesses
OP.....	operational performance
OLS .....	ordinary least square
POS .....	point of sale
PO.....	purchase order
SD .....	standard deviation
<b>Sig</b> .....	significance
VIF .....	Variance inflation factor

**Abstract** *electronic commerce is a big part of today's business. the internet and the world wide web are the most important platforms for electronic commerce. To grow their businesses, many huge companies, small and medium-sized firms, start-up companies, and individuals are increasing their investments in the electronic commerce industry. the primary goal of this article is to investigate the effect of electronic commerce applications on the operational performance of startup businesses. electronic advertising, electronic payment systems, electronic marketing, electronic customer support service, and electronic order and delivery are the five fundamental types of e-commerce applications that could have an effect on organizational operational performance. the research collects data from 100 business firms that have used electronics commerce applications in their business operations in Addis Ababa Ethiopia and are less than five years old since they are established. the data for the study will be cross-sectional quantitative data gathered from primary sources. the data were analyzed using a quantitative research approach. both descriptive and explanatory research designs were used in this study to address the study's specific objectives. the study will also use regression-based analysis with the ordinary least-square technique to investigate the magnitude and direction of the effect of the explanatory variables on the dependent variable. the analysis examined by SPSS version 22. according to the findings of this research statistical analysis, electronic commerce applications have influenced the operational performance and success of newly established businesses.*

**Keywords:** Electronic Commerce, start-up businesses, Operational Performance, electronic commerce applications.

# CHAPTER ONE

## INTRODUCTION

### 1.1 Background of the study

Electronic commerce (EC) according to Išoraitė, M., & Miniutienė, N., (2018) is an information technology-supported business used to enhance sales, business efficiency, and create a foundation for new products and services. E-commerce, in a broader sense, can be defined as the use of electronic communications and digital information processing technologies in commercial transactions so that businesses can modify and redefine relationships with organizations and individual customers to create value (Nisha, C & Sangeeta, G., 2012). The world is currently undergoing a technological revolution or digital transformation that is enhancing the mental advancement of individuals who are a part of it (Šaković Jovanović, J., Vujadinović, R., Mitreva, E., Fragassa, C., & Vujović, A., 2020). In today's competitive global market, information technology (IT) adoption has become a critical component of strengthening organizations' ability to survive and win the present competition, both for government and private businesses (Nyagwencha, 2018). As a result, the adoption of Information Technology (IT) has become essential for all businesses, regardless of their age or size, to survive in today's fiercely competitive business world.

Coping with technological advancements and implementing new e-business applications has become one of the most critical concerns for any business firm's success and performance improvement (Sadi-Nezhad, 2017). The use of e-commerce has been rapidly extended across enterprises around the world due to its related benefits between customers and firms, as well as between customer-to-customer engagements (Meroño-Cerdan, A. L., & Soto-Acosta, P. , 2012). The internet has brought unprecedented transformations in the economic world, communication, social connections, research and education, governance, philanthropic detections, and many other sectors of existence (Amour, 2012). Electronic commerce has dramatically transformed modern living as a result of its powerful concept and operations (Taher, 2021). Currently, the advancement of internet technology has resulted in a significant shift in people's lifestyles (Usak, 2020).

The blessing of information technology is the e-commerce emergency that resulted in online purchasing and the consequent transformation in traditional shopping methods (Rungttrisawat, 2019). Both corporate entities and customers benefit from e-commerce. It has turned traditional shopping into digital or online shopping, making it easier and more convenient for customers to select and pay for their purchases (Rungttrisawat, 2019). It enabled clients to readily access the digital economy's global market (Taher, 2021).

As a result, e-commerce allows customers to purchase things and pay for them without having to physically visit a store. Business groups have benefited from electronic commerce in a variety of ways. It allowed them to strengthen and expand their current market position by allowing them to supply their products in a more cost-effective and efficient distribution sequence for their products and/or services (Abbas, 2021). The application of electronic commerce-enabled business organizations to easily connect with corresponding business organizations and reduce production and delivery times by following the Toyota managing system's just in time production and just in time delivery management system, according to (Taher, 2021). As a result, utilizing e-commerce and adhering to the Toyota production system provides a business with a globally competitive position, positively effecting the performance of business enterprises. Thus, it is important to examine the effect of the application of e-commerce on business firms' performance, especially on new start-up business firms.

## **1.2 Statement of the Problem**

Today, the rapid expansion of globalization boosted by information and communication technologies (ICT) has emerged as the most powerful force influencing the global economy and industry (Ogazi-Onyemaechi, 2019). The internet's distribution has been rapidly expanding over the world, and because of the different services it provides in business transactions, it has grown increasingly crucial to buyers and sellers to the point that suppliers and customers cannot live without it (MALKI, 2015). As a result, rapid technological advancements in the marketplace have produced a new business environment known as e-commerce, which can be viewed as a business mover, as a result of the growing expansion of internet technology (Al-Wahaishi, 2013).

As a result of the extensive usage of internet technology and the increased understanding of information technology among businesses, e-commerce is currently booming. As a result of the

rapid spread of internet technology, businesses of all sizes and ages have been able to move toward electronic commerce; this means that the availability of web-based electronic stores has allowed markets to be expanded and products to be available internationally, allowing for competitive advantage (Monga, 2012).

Electronic business (EB) is the use of technology to modify corporate processes to provide more customer value (AL-Hinn, 2018). It is the deployment of information and communication technology to transform critical business processes to support all business activities. E-commerce refers to any transaction involving the transfer of ownership or rights to use products or services via the Internet via a computer-mediated network (Shahjee, 2016). Therefore, it allows parties to perform business transactions electronically without direct physical contact.

Every business enterprise works to survive and grow in today's highly competitive market. As a result, strategies to aid in the fulfillment of this goal are unavoidable. Regardless of their size, practically all businesses confront competition, and they must seek out the best alternative to meet their customers' needs. In this context, information and communication technology (ICT) and the Internet are two significant tools that organizations can use to achieve their objectives (Hassen, Y. A., & Svensson, A., 2014). Business enterprises must adapt to developments in technology and implement new e-business applications to remain competent, win the competition, and improve their performance (Sadi-Nezhad, 2017). It is difficult for any organization to flourish in today's digital age and a highly competitive business world without making greater use of information communications technologies. Without current technology, such as internet-based e-commerce, it is extremely difficult for businesses, particularly small and new startups, to reach the market and grow quickly (Kozak, 2011).

Business organizations benefit from electronic commerce in a variety of ways. Business enterprises could improve and advance their current market position by utilizing it because it allows them to give more economical, more operational distribution sequences for their products and/or services (Abbas, 2021). The use of internet technology by businesses provides the global potential for cost reduction, income generation, advertising, marketing, and even market entry. Furthermore, it enables businesses to improve their customer service through simple contacts, allowing for rapid requests and responses (Taher, 2021).

As a result, electronic commerce adoption (ECA) has been recognized as one of today's technology tools capable of assisting business enterprises in improving their performance. Cost

savings, higher operational efficiencies, access to new consumers, and improved business growth are all possible benefits of increased Internet use for businesses in general and new startup businesses in particular (Standing, S., Standing, C., & Love, P. E., 2010). This suggests that, when correctly implemented, e-commerce adoption has a positive effect on firm performance.

The rapid rate of technological advancement allows for the development of a new type of company known as a start-up business, which aims to create a scalable, repeatable, and successful business model (Hasani, 2020). Sales growth, capacity to increase market share and customer retention rate, and total return on investment are all factors that can be used to explain the company's business performance (Sorooshian, 2017).

Almost all of a company's activities are aimed at improving its efficiency. As a result, businesses constantly attempt to increase their competitiveness and keep up with their peers by implementing new technologies (Hasani, 2020).

Every year, a large number of new businesses start up around the world. However, the majority of these businesses fail to enhance their performance and meet their objectives, particularly in their first five years (Tsaplin, E., & Pozdeeva, Y., 2017).

The key issues that the success of new start-up businesses (NSB) are their limited advertising, staffing, and customer service budgets, all of which significantly lower their error margin (Ruokolainen, J., & Aarikka-Stenroos, L. , 2016). The rapid expansion and availability of Information and Communication Technology (ICT) at this moment provides an opportunity for new start-up business businesses to compete in the current stiffly competitive business environment.

However, there is a limitation of research on the effect of electronic commerce applications on the operational performance of startup businesses in Ethiopia. Furthermore, no research has been done on the effect of e-commerce application adoption on the performance of new business startup businesses, to the researcher's knowledge. As a result, by examining the effect of e-commerce adoption on the performance of new start-up enterprises, this study will hopefully contribute to decreasing the gap.

### **1.3 Research Questions**

This study sought to answer the following research questions;

- Does electronic Advertising (EA) have a significant and positive effect on the operational performance of new startups business firms?
- Does an electronic Payment System (EPS) have a significant and positive effect on the effect operational performance of new startups business firms?
- Does electronic marketing (EM) have a significant and positive effect on the operational performance of new startups business firms?
- Does electronic Order and Delivery (EOD) have a significant and positive effect on the operational performance of new startups business firms?
- Does electronic Customer Support Service (ECSS) have a significant and positive effect on the operational performance of new startups business firms?

### **1.4 Objective of the study**

#### **1.4.1 General objective of the study**

The general objective of the study is to examine the effect of e-commerce applications on the operational performance of newly established (start-up) businesses firms.

#### **1.4.2 Specific objectives of the study**

The specific objectives of the study are to

- Examine the effect of electronic Advertising on the operational performance of new startups business firms.
- Examine the effect of electronic Payment Systems on the operational performance of new startups business firms.
- Examine the effect of electronic marketing on the operational performance of new startups business firms.
- Examine the effect of electronic Order and Delivery on the operational performance of new startups business firms.
- Examine the effect of electronic Customer Support Service on the operational performance of new startups business firms.

### **1.5 Significance of the study**

The purpose of this research is to see how e-commerce applications affect the performance of new start-up businesses in Ethiopia. The use of e-commerce is fast growing over the world at the moment. Even though e-commerce is a new idea in Ethiopia, due to the rise of web-based internet technologies, the use of e-commerce is growing over time. However, empirical information on the effect of e-commerce on business company performance in underdeveloped nations, such as Ethiopia, is limited. As a result, it is hoped that the findings of this study will help to close this gap. Furthermore, it can be used as a tool for policymakers to keep track of the potential role of e-commerce in improving the performance of new start-up businesses as well as contributing to the nation's economic growth. It also acts as a starting point for academics and scholars who want to do more research. It also serves as an input for academicians and researchers who are interested to conduct further studies in this area.

### **1.6 Scope of the study**

The focus of the research is on the effect of e-commerce on the performance of new start-up businesses in Ethiopia. It's also limited to looking at the effect of electronic advertising, electronic payment systems, electronic marketing, electronic order & delivery, and electronic Customer Support Service on the performance of new start-up businesses. Furthermore, the study mainly focused on new start-up businesses that used e-commerce and were located in Addis Ababa City.

### **1.7 Limitation of the study**

Every study has its own set of limitations. As a result, there are certain limitations to this research. First, the study aims to investigate the effect of e-commerce applications on new start-up businesses, but it fails to represent the effect of e-commerce on the performance of all business firms. Furthermore, the study mainly focused on the effect of e-commerce applications on the performance of new start-up businesses in terms of operational, market, and financial performance. As a result, it fails providing a complete picture of the effect of e-commerce on overall business performance. It is difficult to find firms that have been in operation for less than five years and have adopted e-commerce as their main business strategy.

## **1.8 Organization of the Research**

This research is divided into five chapters and focuses on the effect of e-commerce on the performance of new start-up businesses. Background and the study, the statement of the problem, the study's objectives, the study's significance, the scope of the study, the operational definition of the term, and the study's structure are all covered in the first chapter. The second chapter provides a brief overview of the concepts, theories, and empirical studies linked to operational performance management. Design and approach are discussed in the third chapter. The study's research design, research setting, participants, sample methodologies, data collection instruments, study protocols, and data analysis approaches are all detailed. The comprehensive data analysis is presented in Chapter 4. Finally, in Chapter 5, the results from the studied data are summarized, concluded, and recommendations are given.

## **Chapter two**

### **Literature Review**

This chapter consists of two parts. The first part of the chapter of the study presents concepts and theories regarding e-commerce and firm performance while the second portion of the chapter presents empirical findings of previous studies in the same area.

#### **2.1 Theoretical Literature Review**

##### **2.1.1 The Concept of E-commerce**

Electronic commerce, according to Ahangari Nanekaran, (2013), is a dominant concept and process that has fundamentally changed people's present lifestyles. E-commerce is the process of performing transactions of goods and services using electronic devices (Išoraitė, M., & Miniotienė, N., 2018). E-commerce is a business practice revolution that has affected all business functional domains and their critical activities (Jahanshahi et al, 2011). While the term commerce refers to business partners buying and selling or exchanging items, services, and information, e-commerce refers to the support of this activity through computer networks, such as the internet (Anupam-2011).

E-commerce, as a new concept, can be used in a variety of business activities, from advertising to paying bills. It encompasses a wide range of activities, including the exchange of products and services, the electronic transfer of digital information, electronic marketplaces, and consumer direct marketing (Jahanshahi, 2011).

Electronic commerce refers to a business environment in which electronic technology is used to manage information about goods sales, buys, and transportation. Mobile commerce, electronic funds transfer, supply chain management, Internet marketing, online transaction processing, electronic data interchange, inventory management systems, and automated data gathering systems are all examples of electronic commerce (Shahriari, 2015). E-commerce has already penetrated every aspect of the company, from customer service to new product development. It helps business firms reach and interact with customers like online advertising and marketing, online order taking and online customer service, etc. FOR it facilitates new types of information-based business processes (Gangeshwer, 2013).

### **2.1.2 Electronic commerce applications**

The emergency of E-commerce causes a significant shift in the business world. The application of e-commerce addresses every component of the process and is changing all business functional areas and their important tasks, ranging from advertising to paying bills (Asghar, 2011). Due to the wide range of applicability in the business process and its corresponding benefits, e-commerce has been received significant attention across the globe. Currently, different business regardless of size and business type uses e-commerce in their business process. Although there are many different types of e-commerce applications, Electronic Advertising, Electronic Customer Support Service, Electronic Marketing, Electronic Payment Systems, and Electronic Order and Delivery are the most common applications of e-commerce (Jahanshahi, 2011). Providing current and potential customers with all information about the product, offering order and paying for it online, at any time of the day and anywhere, on the Internet, providing advice on matters of concern are among the main advantages of e-commerce is to (Išoraitė, M., & Miniotienė, N., 2018).

#### *2.1.2.1. Electronic advertisement*

It's a type of marketing that focuses on attracting new clients. Advertising goods and services through any conventional or traditional media, particularly a global advertisement, is an expensive investment (Kumar, 2018). As a result, businesses tend to take advantage of the internet's advantages to promote online at a lesser cost. Electronic advertising is advertising that promotes and sells a company's products and services by using the Internet and other types of digital media. The purpose of electronic advertising is to reach out to a bigger number of potential customers over the internet. Advertising can also be supported within the limitations or boundaries of one's budget, making it more cost-effective. It is defined as giving clients product information, showing company information on a website, electronic brochures, or buying guidance online. Only show a selection of products that are relevant to the consumer. Electronic media benefits people by keeping them informed about general information, awareness, knowledge, and current events. The value of electronic and social media is comparable to the value of people's eyes (Pirzada, 2014).

#### *2.1.2.2. Electronic payment system*

An electronic payment system (e-payment system) is a technique of making transactions or paying for goods and services without using checks or currency. It's also known as an online

payment system or an electronic payment system. Due to the growing popularity of internet-based banking and shopping, the electronic payment system has grown in recent decades. Credit and debit cards are one of the most popular online payment options. Alternative payment options include bank transfers, electronic wallets, smart cards, and bitcoin wallets, among others (bitcoin is the most popular cryptocurrency). Smart cards, mobile banks, internet banks, point of sale (POS), and direct debit are all very widespread in our country. Direct debit is a financial transaction in which the account holder instructs the bank to collect a specific amount of money from his account electronically to pay for goods or services.

A technique for performing transactions or paying for products and services without utilizing checks or currency is known as an electronic payment system (e-payment system). It's also referred to as an electronic payment system or an online payment system. The electronic payment system has evolved in recent decades as the popularity of internet-based banking and shopping has grown. One of the most popular online payment methods is credit and debit cards. Bank transfers, electronic wallets, smart cards, and bitcoin wallets are all examples of alternative payment methods (bitcoin is the most popular cryptocurrency). In our country, smart cards, mobile banks, e-banking, Cash transfer programs, internet banks, point of sale (POS), and direct debit are all widely used. Direct debit is a type of financial transaction in which the account holder asks his bank to electronically withdraw a certain amount of money from his account to pay for products or services. Electronic Payment Systems can be defined as financially responsible ventures that enable clients and traders to converge and use equal platforms via electronic ways (Naeem, M., Hameed, M., & Taha, M. S. , 2020).

#### *2.1.2.3. Electronic marketing*

To facilitate exchanges and meet client expectations, e-marketing is the planning and execution of product and service creation, distribution, promotion, and pricing in a computerized, networked environment, such as the Internet and the World Wide Web. It has two main advantages over traditional marketing. More convenience and reduced prices benefit customers. Customers may get market information, buy products, and locate services without leaving their homes 24 hours a day, seven days a week (24/7), owing to businesses that provide e-marketing and online shopping. They can read ads on the Internet or via e-mail, get e-coupons, look at product photographs, compare prices, and make purchases with just a few mouse clicks, saving time and money compared to going to a physical store. E-businesses can save money on

distribution networks and physical store space at the same time, which they can pass on to their customers.

The two types of e-marketing approaches are pulling and push marketing. Pull marketing is a type of passive marketing in which internet users make requests for specific information. Push marketing is a proactive marketing method that enables e-marketers to "push" product/service information to Web users or buyers without them explicitly asking for it. Banner advertising, pop-up advertising, e-mail promotion, and spamming are all examples of push marketing. Allowing a customer to contact a sales office and sharing information with competitors, customers, and suppliers are examples of this. Using the internet to discover what people want and need Anticipating client requirements with the help of the internet Using the electronic channel to achieve client satisfaction. The revolution and advancements in computer science, the Internet, information technology (IT), media, and communications, as well as the associated cost reductions, have revolutionized the way businesses are conducted in today's world. In recent decades, an increasing number of firms and enterprises have used the Internet and other electronic communication tools to conduct commercial and/or marketing efforts and operations, allowing Electronic Marketing techniques to flourish (El-Gohary, 2012).

#### *2.1.2.41. Electronic order and delivery*

Electronic order is created and dispatched electronically. A purchase order (PO), often known as a PO, is a document that serves as proof of a request for products or services from a supplier in line with the terms agreed upon by the parties engaged in the transaction. Electronic orders are electronic data interchange (EDI) messages that are sent via EDI systems. They're used to finish a series of electronic messages that automate the purchasing process, including ordering, delivery notifications, and invoicing. The advantages of re-ordering are derived from the overall benefits of using EDI solutions. It gives more security, flexibility, and fluidity in communication between trading partners by implementing established protocols. The number of business partners grows in lockstep with the number of messages sent (customers, suppliers, logistics operators, and so on). The benefits of EDI become more apparent as time passes. E-ordering benefits both buyers and their suppliers. The most important benefits of the system are speed, security, standardization, and traceability. It describes Coordinating procurement with suppliers' online ordering of software products Lower costs per business transaction Tracking incoming and outgoing goods delivery Online order entry and delivery Electronic Data

Interchange (EDI). Nowadays, customers can purchase goods in borderless online markets. Cross-border electronic commerce offers attractive opportunities to customers because of competitive prices and wide product assortments (Kim, T. Y., Dekker, R., & Heij, C. , 2017).

#### *2.1.2.5. Electronics customer support service*

Customer support service is one of the component business processes. The customer support service process needs face-to-face contact without the application of e-technology and is costly. However, thanks to internet technology, it is one area of business activity in which business firms apply e-commerce with less cost compared with the traditional one. In this regard firms can apply E-commerce in help- frequently asked questions, online products update, handling customers' feedback/queries online, online application/registration, and personalized email communication. When evaluating the perceived customer delivered value supplied by e-commerce, customer satisfaction is crucial. Customer need, customer value, and customer cost are major scales that have a substantial effect on customer satisfaction (Lin, 2003).

### **2.1.3 Operational Performance**

Formulating and implementing performance management in any organization is just to bring about a continuous improvement on employees' effectiveness thereby enhancing operational performance. However, having in place a performance system and implementing it alone is not a guarantee for achieving the desired outcome rather it requires effective implementation. According to Waal (2007), to be said effective performance management process should meet the predetermined operational financial and non-financial goals including the improvement of skills and competencies as well as enhancement in the customer care and process quality. Effective performance management demands both performance measurement and acting on the corresponding result (Waal et al., 2011).

Conducting an assessment of operational performance help the organization determines the level of achievement of the predetermined operational goals. Therefore, to understand the level of effectiveness of the implemented performance management process organizations in terms of achieving the already planned goals, organizations irrespective of their nature need to measure operational performance. In addition, through measuring their performance organizations can also identify the strength and weaknesses throughout the process and act accordingly. This implies that performance measurement is one of the most vital components in the performance management system.

Performance is typically evaluated by use of a performance measure, which has been defined as “a variable or metric used to quantify the efficiency or effectiveness of an action” (Olsen, et al., 2007, p. 563) cited in (Ricci, 2016). As stated by Hunger, (2003), performance measurement as a means of assessment of operational performance highly emphasizes how the units have to be assessed and how they are going to be achieved. Therefore, in assessing operational performance putting in place the most appropriate method of assessment and identifying the right variables that are well suited in indicating the various aspects of organizational performance is of paramount importance. Once the variables to be assessed are known and the right measurement unit is already there, organizations can then become clear on how operational performance is to be assessed as well as in what way the various perspective of performance indicators are to be achieved.

Based on its definition one can understand how the term performance can be seen from the various financial and non-financial goals of organizations. In this case, it will be a must to link performance with the various financial and non-financial performance indicators (Popova, V., and Sharpanskykh, A, 2010). Therefore, in measuring operational performance against the different indicator’s organizations need to deploy a set of statistical data. The data to be used can be either quantitative or qualitative depending upon the very purpose of the measurement. In the traditional performance measurement, operational performance was measured only from the financial perspective. Although, there are many indicators in measuring the financial success of organizations, Profit Margins, Return on Assets, and Return on Equity are among the three frequently used ones (Tangen, 2004). However, in the current, stiffly competitive business world and the globalization era where the world become as close as a village relying only on financial performance indicators couldn’t provide the full picture of operational performance. As the traditional performance measures failed to consider the non-financial factors that directly or indirectly affect operational productivity, currently many companies across the world have been measuring performance by incorporating non -financial factors such as customer loyalty and employee satisfaction (Ittner, C.D. and Larker, D.F., 2003).

Following the limitation of the traditional performance measures in terms including the non-financial aspects of operational performance indicators, many operational performance measurement evaluation models that considered the non-financial performance indicators have been developed by various authors over time.

In general, all these models were designed to help an organization measure its performance by incorporating both the financial and the non-financial perspectives of multiple indicators. However, what to measure and how to develop the operational performance measurement and evaluation system highly depends on the specific strategies and goals intended to be achieved by each organization. This, in turn, makes to find a one single fit operational performance measurement and requires individual organizations to develop a specific operational measurement that most suits their particular objectives (Tangen, 2004).

Concerning the objective of performance management at the operational level the Balanced Scorecard is one of the most important and widely used management tools as indicated in the literature (Felizardo et al., 2017). It was designed by Kaplan and Norton in 1990, to help organizations measure performance in a two balanced perspective namely: financial and non-financial, short-term and long-term, internal and external. Accordingly in this research firm performance is measured from financial, operational, and market-based performance aspects of operational performance.

Across many businesses, operational excellence has become widely regarded as a vital success component. It's best described as the level at which all of an organization's business units collaborate to achieve key business objectives. There are a lot of publications and textbooks about operational performance management, which is understandable. Many businesses have established departments and job functions dedicated to converting the value of their assets into improved performance. Information technology is both the source of today's most pressing business problems and the method of addressing them. Market share, new product introduction, product/service quality, marketing effectiveness, and customer satisfaction are all subcategories of operational performance, according to (Carton, R. B., & Hofer, C. W., 2006).

### **2.1.3.1 Financial and accounting performance**

Financial performance is a subjective indicator of a company's ability to earn revenue from its principal way of operation. It is used as a broad indicator of a company's overall financial health over time. Investors can learn about a company's overall health by looking at its financial performance. Financial statements used in analyzing overall financial performance include the balance sheet, income statement, and statement of cash flows. Financial performance indicators are quantitative measurements used to analyze how effectively a corporation is performing.

Financial performance, in a wide sense, relates to how well financial goals are being met or have been met, and it is an important part of financial risk management. It is the process of calculating the monetary value of a company's policies and operations. It's used to assess a company's overall financial health over time, as well as to compare similar companies in the same industry or to compare industries or sectors in aggregate. Accounting-based measures (for example, profitability measures such as return on assets, return on investment, return on sales, and return on equity), market-based measures (for example, stock market returns), or a combination of accounting- and market-based measures are typically used to evaluate performance (for example, price-earnings ratio). Performance evaluations frequently use accounting-based criteria. For performance-league tables, popular management magazines (such as business week and management today) use profitability criteria. Furthermore, profitability measurements are the most commonly utilized in academic performance research (McGuire, J. B., Sundgren, A., & Schneeweis, T. , 1988) and (Hubbard, G., & Bromiley, P., 1995). Accounting-based data might be deceiving since they may have been modified to make them appear better. Lack of uniformity in corporate accounting procedures (for example, in the treatment of inflation, inventory valuation, and depreciation or intangible assets) and lack of uniformity in international accounting rules make interpretations and comparisons problematic.

### **2.1.3.2 Market-based performance**

Because accounting-based measures have been criticized, several authors propose market-based measures as better overall performance indicators (McGuire et al., 1986; Habel, 1992). Investors' estimates of future firm potential are assumed to be reflected in stock market data, which focuses on the enterprise's long-term value. Stock-market statistics are viewed as reasonable indices of corporate success for listed corporations under the assumption that investors evaluate firms accurately (perfect markets). However, their widespread application is hampered by the unrealistic assumption of perfect markets and the significant fraction of unlisted enterprises.

Productive efficiency – a measure of a firm's cost-effectiveness in producing its outputs is a key component of market performance. Ideally, outputs should be produced in plants of optimal scale, i. e., plant sizes that fully exploit available economies of scale to achieve minimum cost levels, distributive efficiency the use of cost-effective distribution channels and marketing

techniques to minimize distribution costs, and the setting of 'fair' prices to consumers, i.e., consistent prices. Consumer demand for product variety and sophistication, i.e., maximization of consumer choice and value-for-money attributes, and technological progress – the introduction of process and product innovations that reduce supply costs and prices in real terms while providing consumers with technically superior products.

Market performance is determined primarily by market structure and market conduct. For example, in markets where economies of scale are significant, a high level of market concentration may be required to minimize supply costs. In terms of consumer welfare, pricing competition between firms is expected to benefit customers, whereas collusion is likely to harm customers. These and other aspects of market structure and conduct are important considerations in a government's competition and industrial policies. See the market structure-conduct-performance schema for further information. The effectiveness of a market in utilizing scarce resources to meet consumer demands for goods and services; that is, how well a market has contributed to economic welfare optimization. The following are important aspects of market performance: productive efficiency, distributive efficiency, that is, the ability of a market to produce and distribute its products at the lowest possible cost, allocative efficiency, that is, the extent to which the market prices charged to buyers are consistent with supply costs, including a normal profit return to suppliers, technological progressiveness, the ability of suppliers to introduce new cost-cutting production and distribution techniques and superior products over time, product performance, that is, the quality and variety of products offered by suppliers

## **2.1 Empirical Literature Review**

Asghar, (2011) studied the effects of electronic commerce (e-commerce) applications on the operational performance of Indian small and medium enterprises. Accordingly, the empirical findings indicated that electronic commerce applications have a statistically significant positive effect on operational and market-based performance in particular and on overall operational performance in small and medium enterprises in general. However, the study also indicated that it has no statistically significant positive effect on financial performance in small and medium enterprises.

Asghar, (2011) examined the effect of e-commerce applications on the operational performance of small and medium enterprises in India. The result of the study findings revealed that electronic commerce applications have a significant and positive effect on operational performance in Indian SMEs.

Qtaishat, (2015) investigated the concept of E-commerce and operational performance, and examine the effect of E-commerce on operational performance in Jordanian insurance companies. The result of the study indicated that there is a statistically significant positive relationship between E-commerce and operational performance in Jordanian insurance companies.

Asghar, (2011) examined the effect of electronic commerce applications on the business processes in the small and medium enterprises in India. According to the study finding electronic commerce applications has a significant and positive effect on the business processes of Indian SMEs.

Ibrahim, (2019) explored the factors affecting e-commerce adoption among SMEs, and establish the influence of e-commerce adoption on SMEs' performance in Uganda. The empirical results of this study indicate that e-commerce adoption significantly influences the performance of SMEs positively.

Achiando, (2019) studied the effect of E-commerce on the performance of Micro and Small Enterprises (MSEs) in the private security sector through four focal points; E-commerce integration, social media integration, Customer relationship management, and Online marketing strategies to find out their effects on performance measured as sales volume. The result of the study finding revealed that e-commerce has a significant and positive association with MSE's performance. (Igwe, 2020) examined the effect of E-Commerce on business performance in a business environment. According to the empirical finding, the adoption of e-commerce enhances the business activity and its overall performance. Lule, E., & Tusiime, B., (2019) investigated the effects of E-commerce on SMEs in Uganda. The study revealed that as measured in terms of sales volume and number of customers, there was a strong positive relationship between E-commerce adoption and business performance. (Azeem, 2015) studied the Effect of E-Commerce on Organization Performance Evidence in the case of Banking Sector in Pakistan. The result results showed that there is a positive relationship between e-commerce and organization performance and by implementing e-commerce; organizations

improve their performance in terms of business operations, job performance, and customer satisfaction.

Based on the theoretical and empirical literature reviewed, the conceptual framework of the study was developed as follows;

## **2.2 Research hypothesis**

Based on the research question the research hypothesis of the study is presented as follows;

Electronic Commerce Applications has a significant and positive effect on the operational performance of new startups business firms

- Electronic Advertising has a significant and positive effect on the operational performance of new startups business firms
- Electronic Payment System has a significant and positive effect on effect operational performance of new startups business firms
- Electronic marketing has a significant and positive effect on the operational performance of new startups business firms
- Electronic Order and Delivery has a significant and positive effect on the operational performance of new startups business firms
- Electronic Customer Support Service has a significant and positive effect on the operational performance of new startups business firms

## 2.3 Conceptual Framework

### Independent variables

### Dependent variable

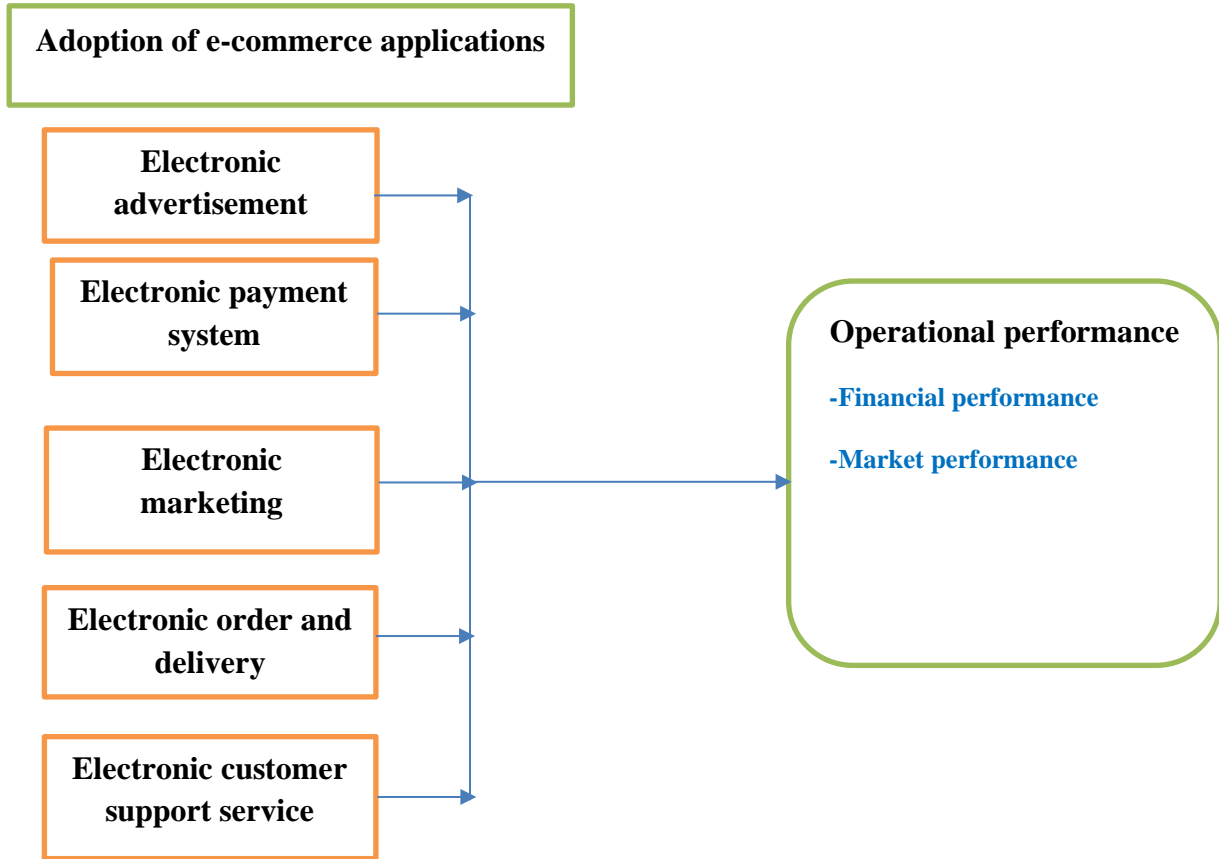


Figure 2.1 Conceptual Framework

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

This section of the study presents the major issues related to the research methodology to be used for this particular study, including the research approach, research design, target population, sample size determination formula, data sources, data collection instruments, variable measurements, and data analysis methods.

#### **3.1. Research Approach**

The nature of the data to be used in a particular study defines the research approach to be used in the particular study. Because this study used quantitative data, a quantitative research approach is the most appropriate one to use. As a result, the primary data collected via a structured questionnaire will be analyzed using a quantitative research approach.

#### **3.2. Research Design**

In research, the research design that will be used is defined by the study's objectives. The goal of this research is to see how an e-commerce application affects operational performance in new start-up businesses. Attempts were made to examine the effect of electronic advertising, electronic payment system, electronic marketing, electronic order and delivery, and electronic customer support service on the operational performance of new start-up business firms based on the specific research objectives of the study. As a result, both descriptive and explanatory research designs used in this study to address the study's specific objectives.

#### **3.3. Population and Sampling Design**

##### **3.3.1 Target Population of the Study**

The population that is being studied is referred to as the target population. As a result, the study's target demographic is new start-up businesses in Addis Ababa that have used e-commerce in their business processes and are less than five years old. As a result, this study's target population will consist of all business firms that match the criteria.

### **3.3.2 Sampling Technique and Sample Size Determination**

The accuracy and validity of the information gathered are heavily influenced by sample size and sampling methodology. In most developing nations, obtaining accurate information about businesses that engage in internet-based business operations or have adopted e-commerce is extremely difficult (Souter, D., & Kerretts-Makau, M., 2012). Because there are no official records of online businesses in Ethiopia, a purposive sampling technique was used to choose suitable sample respondents for this study. As a result, 100 businesses that had been in operation for less than five years and used e-commerce in the areas of electronic advertising, electronic payment, electronic marketing, electronic order and delivery, and electronic customer support were purposefully chosen.

### **3.4 Source of data and data type**

The data for the study will be cross-sectional quantitative data gathered from primary sources. As a result, the study will rely on primary data that is quantitative and cross-sectional in nature. As a secondary source of data, various books, published and unpublished documents, periodicals, bulletins, annual reports, journals, articles, and research papers will be used to obtain information on theoretical e-commerce applications and firm performance.

### **3.5 Instruments of Data Collection**

Researchers can use a variety of data collection tools/instruments to get primary data from respondents on the issues under investigation. The major data collection tool for the current study, which is examining the effect of e-commerce applications on operational performance in new start-up business organizations, will be a survey questionnaire, which was initially constructed based on past studies. The questionnaire will be divided into three sections: demographics, e-commerce application factors, and the effect of e-commerce applications on operational performance. The questionnaire had 37 items/questions on a five-point Likert scale in total.

The respondents were asked to score a particular issue on a scale ranging from very disagree to very agree using the Likert scale. There were an even number of alternatives on the rating system, ranging from one to five. For each closed-ended question, the scales used in the

questionnaire were based on a 5-point Likert scale (with 1 indicating very disagree, 2 indicating disagree, 3 indicating neutral, 4 indicating agree, and 5 indicating very agree).

The physical questionnaires were distributed to the business managers of the sampled new-start-up business firms, and respondents were given the questionnaires to complete and return to the researcher on a set schedule. Their involvement was fully voluntary and anonymous. The questionnaires took about 20 to 30 minutes to complete, and the data for the study was collected over three weeks.

### **3.6 Methods and Techniques of Data Analysis**

Following the gathering of the required raw data, a quantitative approach to data analysis will be used to convert raw data into interpretable data. The information gathered will be examined using descriptive statistics including response frequencies, percentages, ANOVA, and correlation analysis approaches. The study will also use regression-based analysis with the ordinary least-square technique to investigate the magnitude and direction of the effect of the explanatory variables on the dependent variable. The information will be examined with SPSS Version 22.

### **3.7. Research Reliability and Validity**

#### **3.7.1 Reliability Test**

It is necessary to examine the reliability of data collected in a study or analysis before using it. A measurement employed in research must pass the validity, reliability, and practicality standards to be considered sound (Kothari, 2004). Reliability refers to a data-gathering instrument's ability to produce consistent results over repeated trials in various locations and periods. Cronbach's alpha coefficient, invented by Lee Cronbach in 1951, is a widely used measure of reliability. Internal consistency, often known as dependability, is a measure of consistency within a design (Bhattacharjee, 2012). In this case, a measurement with an alpha coefficient value between 0.8 and 0.95 is considered to have very good internal consistency, while measurements with an alpha coefficient value between 0.7 and 0.8 are considered to have good reliability, and measurements with an alpha coefficient value between 0.6 and 0.7 are considered to have a fair level of reliability (Zikmund, W. G., Carr, J. C., & Griffin, M., 2013).

As a result, Cronbach’s Alpha coefficient, the most frequently used method of reliability test, will be employed in this study to ensure the accuracy and reliability of the study findings.

**Table 3.1. Reliability test result**

	<b>Cronbach’s Alpha if Item Deleted</b>	<b>No. of Items</b>
EA	.874	4
ECSS	.844	5
EM	.812	5
EPS	.833	4
EOD	.810	6
EAOP	.814	10

Source: own survey, 2021

The Cronach’s Alpha coefficient of evaluation for each construct was over the cutoff value of 0.70, as shown in table 3.1. All of the constructs had a Cronach’s Alpha coefficient ranging from .810 to .874, indicating that the data collecting instrument had a good internal consistency and that the data used in this study was reliable.

### **3.7.2 Validity Test**

The validity test allows researchers to assess an instrument’s capacity to measure what it claims to measure in a given study (Kothari, 2004). Validity tests will be developed based on prior studies, reviews of related literature, and standard questions in the linked research area in order to ensure the validity of the instrument in this study. Furthermore, experts with sufficient knowledge and skill in the field, as well as the research advisor’s judgment, were developed to evaluate the content validity in this study.

## CHAPTER FOUR

### Result and Discussion

#### 4.1. Introduction

The findings of the study, as well as their interpretations and discussions, were provided in this chapter. The chapter is divided into three sections. The survey data about the respondents' demographic characteristics are presented in the first section of the chapter. The findings and discussion of the descriptive statistics analysis are presented in the second section of the chapter, while the results and discussion of the inferential statistics analysis are presented in the third section.

#### 4.2. Questionnaire Response Rate

A total of 100 questionnaires were distributed to the respondents, with 84 being returned and filed correctly. As a result, the questionnaire response rate was 84 percent, which is sufficient to produce valid research findings.

#### 4.3. Demographic Characteristics of Respondents

Analyzing the demographic information of respondents is necessary to understand the differences among respondents in terms of the primary demographic variables and to evaluate their responses accordingly. As a result, this section will show the demographic features of survey respondents by sex, age, and company age.

##### 4.3.1 Gender of Respondents

**Table 4.1. Gender of the respondents**

		<b>Frequency</b>	<b>Percent</b>
Valid	male	43	51.2
	female	41	48.8
	Total	84	100.0

*Source: own survey, 2021*

According to the demographic distribution of the respondents shown in Table 4.1, approximately 51.2 percent of the total 84 respondents were male, with the remaining 48.8% being female. It indicates that electronic commerce is used in the same way by men and women.

As a result, men and women are roughly equally accepting of electronic commerce. In terms of e-commerce awareness, there isn't enough evidence of a gender divide.

#### 4.3.2 Age of the Respondents

**Table 4.2. Age of the Respondents**

<b>Age of the Respondents</b>		<b>Frequency</b>	<b>Percent</b>
Valid	Less than 20	22	26.2
	21-30 years	25	29.8
	31-40 years	18	21.4
	Above 40 years	19	22.6
	<b>Total</b>	<b>84</b>	<b>100.0</b>

*Source: own survey, 2021*

The majority of respondents (29.8%) were between the ages of 21 and 30, with those under the age of 20 coming in second (26.2%), according to the statistics in Table 4.2. Around 22.6 percent of the total respondents were beyond the age of 40, while the remaining 21.4 percent were between the ages of 31 and 40. This indicates that younger generations under the age of 30 are more likely to use electronic commerce in their businesses than those above the age of 30. There is a significant age difference in e-commerce awareness.

#### 4.3.3 Age of the sample business firms

**Table 4.3. Age of the sample business firms**

<b>Age of firm</b>		<b>Frequency</b>	<b>Percent</b>
Valid	Less than 2 years	23	27.4
	2-3 years	34	40.5
	4-5 years	27	32.1
	<b>Total</b>	<b>84</b>	<b>100.0</b>

*Source: own survey, 2021*

According to table 4.3 approximately 40.5 percent of the investigated business firms were between the ages of two and three, while 32.1 percent and 27.4 percent of the selected business enterprises were between the ages of 4-5 years and less than two years, respectively. In comparison to the other age distributions, firms between the ages of 2-3 years are more likely to adopt e-commerce.

#### 4.4. Descriptive Statistics Analysis

The purpose of the descriptive statistics is to capture the perception of respondents regarding the adoption of e-commerce in various business activities and its corresponding effect on the success/performance of new startup business firms under study. Accordingly, each statement

under each business activity was subjected to the five Likert scales of measurement. In Likert's five scale measurement, each statement in the questionnaire was scaled from 1 to 5. Accordingly, the scale of 1 represents the respondent's perception of a statement as very disagree, 2 stands for disagree, 3 for neutral, 4 for agree, and 5 for very agree. The mean value of all the respondents' ratings for each statement under a given business activity will be taken as the perception of all employees on the statement. Therefore, the interpretation of the mean value for each statement is as follows; 1.00-1.80= very disagree, 1.80-2.60= disagree, 2.60-3.40= neutral, 3.40-4.20= agree, and 4.20-5.00= very agree.

#### 4.4.1 E-Commerce Adoption as Electronic Advertisements

**Table 4.4. E-Commerce Adoption as Electronic Advertisements**

<b>Statements</b>	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
Electronic Ads	84	4.31	.537
Displays company information	84	4.43	.587
Online electronic brochures or buying guides	84	3.93	.833
Electronic Advertisements to display products	84	4.29	.528
<b>Average Electronic Advertisements factors</b>	<b>84</b>	<b>4.24</b>	<b>.434</b>

*Source: own survey, 2021*

Respondents were asked to rate statements on the use of e-commerce as an advertising tool in these sections. As a result, respondents rated the use of e-commerce by the study's business firms to deliver product information to clients as very good, with a mean value of 4.31 (SD = .54). Similarly, respondents rated the usage of e-commerce to display firm information on a website or through social media as very good, with a mean value of 4.43 (SD = .59). Respondents also indicated agreement with the usage of online electronic brochures or buying guides as a marketing tool by evaluating it as good with a mean score of 3.93 (SD = .83). The use of e-commerce by the business organizations under study to display only a range of products that are relevant to the particular client was to a high extent, according to the respondents, with a mean score of 4.29 (SD = .53). Finally, the respondents rated the total use of e-commerce as a factor of advertising for new startup business firms as a very high level, as described by the average rating of all four statements, with a mean score of 4.24 (SD = .43). Generally, the findings confirmed that new startup firms depend heavily on e-commerce advertising.

#### 4.4.2 E-Commerce Adoption to support customer service

**Table 4.5. E-Commerce Adoption to support customer service**

Statements	N	Mean	Std. Deviation
Online frequently asked questions support	84	4.26	.540
E-commerce customer service team	84	4.21	.603
Handling customer feedback/queries online	84	4.13	.597
E-commerce form registration	84	4.23	.588
Guide customers through e-mail communication.	84	3.71	.964
<b>Average E-Commerce customer support service</b>	<b>84</b>	<b>4.28</b>	<b>.350</b>

*Source: own survey, 2021*

Table 4.5 shows the respondents' opinions on various claims of e-commerce usage in supporting customer services by new startup businesses. With a mean score of 4.26 (SD =.54), the respondents rated the use of e-commerce to assist–online regularly asked questions by consumers as very good. The use of e-commerce by the business organizations under research to give clients online information about items and order updates was very high, according to the respondents' assessments, with a mean score of 4.21 (SD =.60). With a mean score of 4.13 (standard deviation =.60), the respondents judged the use of e-commerce in addressing consumer feedback/questions online by the commercial firms under study as good. The respondents regarded the usage of e-commerce for online registration of applicants in their business firm as very good, with a mean score of 4.23 (SD =.59). The usage of e-commerce to advise customers through individualized e-mail communication was found to be at a high extent, according to the respondents, with a mean score of 3.71 (SD =.96). According to the respondents, the general adoption of e-commerce for customer support service is quite strong, with a mean score of 4.28 (standard deviation =.35). In general, new startup business firms' usage of e-commerce for customer service was rated as excellent.

#### 4.4.3 E-Commerce Adoption as a Marketing option

**Table 4.6. E-Commerce Adoption as a Marketing option**

Statements	N	Mean	Std. Deviation
Communicate with a sales officer	84	4.12	.589
Share information with competitors, customers, and suppliers	84	4.37	.597
Identify client needs and desires.	84	4.35	.570
Anticipate/predict customer needs.	84	4.52	.570
Means of achieving customer satisfaction.	84	4.48	.570
<b>Average E-Commerce Marketing</b>	<b>84</b>	<b>4.42</b>	<b>.30</b>

Source: own survey, 2021

Table 4.6 showed that the use of e-commerce by the business organizations understudy to allow customers to contact sales officers was widespread, as indicated by respondents with a mean score of 4.12 (SD =.60). Respondents assessed the usage of e-commerce to exchange information with competitors, consumers, and suppliers as extremely high, with a mean score of 4.37 (SD =.60). The respondents rated the usage of e-commerce in recognizing client requirements and wishes as very high, with a mean score of 4.37 (Std. Deviation =.60). The respondents rated the usage of e-commerce in anticipating/predicting client demands as extremely high, with a mean score point of 4.52 (standard deviation =.57). Similarly, respondents rated the usage of e-commerce as a technique of achieving customer satisfaction by a new startup business as very high, giving it a mean score of 4.48 (SD =.57). Overall, the results indicated that new startup companies use e-commerce as a marketing option at a very high level, with a mean score of 4.42 (SD =.30).

#### 4.4.4 E-Commerce Adoption as a payment option

**Table 4.7. E-Commerce Adoption as a payment option**

<b>Statements</b>	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
Cash transfer programs like Hello Cash, EMS Ethiopia	84	4.38	.693
Electronic Fund Transfer (EFT) like POS, ATM	84	4.32	.809
E-banking and mobile payment system like M-birr, Tele-birr	84	4.13	.889
Smart and prepaid card.	84	4.36	.652
<b>Average E-Commerce Payment System</b>	<b>84</b>	<b>4.34</b>	<b>.374</b>

Source: own survey, 2021

The respondents rated the usage of e-commerce as a technique of achieving customer satisfaction as very good, as shown in table 4.7, with a mean score of 4.48 (SD =.57). According to the respondent's assessment, the use of cash transfer services such as Hello-Cash and EMS Ethiopia was widespread, with a mean score of 4.38 (SD =.69). Similarly, respondents rated the use of electronic payment in the form of Electronic Fund Transfer (EFT) such as POS and ATM as very good, with a mean score point of 4.32 (SD =.81). The use of e-banking and mobile payment systems such as M-birr, Tele-birr, and internet banking as a payment method by new startup enterprises, on the other hand, was rated as high, with a mean score point of 4.13 (SD

=.89). In general, new startup enterprises' usage of e-commerce as a form of payment was scored as high, with a mean score point of 4.34 (standard deviation =.37).

#### 4.4.5 E-Commerce Adoption as a payment option

**Table 4.8. E-Commerce Adoption as a means of Order and delivery**

Statements	N	Mean	Std. Deviation
Coordinate procurement with suppliers online	84	4.21	.582
Order things online	84	4.37	.555
Reduce transaction costs	84	4.46	.590
Track incoming and outgoing goods delivery	84	4.42	.625
Order entry and delivery	84	4.44	.499
<b>Average E-Commerce Order and delivery</b>	<b>84</b>	<b>4.41</b>	<b>.310</b>

*Source: own survey, 2021*

The respondents regarded the use of e-commerce in coordinating procurement with suppliers as very good, as shown in table 4.8, with a mean score point of 4.21 (standard deviation =.58). Similarly, respondents ranked the usage of e-commerce in allowing customers to order items online and reducing transaction costs as very good, with mean scores of 4.37 (Std. Deviation =.56) and 4.46 (Std. Deviation =.59) respectively. Respondents, on the other hand, rated the usage of e-commerce in tracking incoming and outgoing goods delivery, as well as ordering entry and delivery, as extremely high, with mean score points of 4.42 (Std. Deviation =.63) and 4.44 (Std. Deviation =.60) respectively. As described by the average of the mean score of all statements under the use of e-commerce as a means of order and delivery, the overall status of the use of e-commerce by the new startup business as a means of order and delivery of goods was rated as very high, with mean score points of 4.41 (Std. Deviation =.31).

#### 4.4.6 E-commerce adoption and Operational performance

**Table 4.9. E-commerce adoption and Operational performance**

Statements	N	Mean	Std. Deviation
Improve market share	84	4.43	.645
Increased profitability	84	4.70	.460
Increase in the sales volume	84	4.45	.589
Improved interactions with and among customers	84	4.23	.499
Decreased fraud	84	4.64	.552
Improved competitiveness	84	4.37	.510

Improved communication	84	4.30	.460
New business opportunities	84	4.55	.524
Enhanced linkages with business partners	84	4.54	.569
<b>Average E-commerce Operational performance</b>	<b>84</b>	<b>4.48</b>	<b>.246</b>

Source: own survey, 2021

The goal of this phase of the descriptive study was to see how new startup enterprises' adoption of e-commerce affects their business success or performance. Respondents rated the importance of e-commerce adoption in business activities in terms of increasing market share, profitability, and sales volume of a new startup business as very high, with mean score points of 4.43 (Std. Deviation =.65), 4.70 (Std. Deviation =.46), and 4.45 (Std. Deviation =.59), respectively. According to the respondents, the adoption of e-commerce in the business activities of new startup business firms contributed significantly to improving interactions with and among customers and mitigating fraud in their organization, with mean score points of 4.23 (Std. Deviation =.50) and 4.64 (Std. Deviation =.55), respectively. The role of e-commerce adoption in resulting in enhanced competitiveness and communication in their firm was regarded as very good with mean scores of 4.37 (Std. Deviation =.51) and 4.30 (Std. Deviation =.46), respectively. According to the respondents, the use of e-commerce is quite high in terms of creating new business opportunities and improving connectivity with business partners, with mean score points of 4.55 (Std. Deviation =.52) and 4.54 (Std. Deviation =.57), respectively. Overall, respondents agreed that the effect of e-commerce adoption on the success/performance of new business startups is extremely strong, with a mean score point of 4.48 (standard deviation =.25).

According to the overall descriptive statistics analysis, with a mean score greater than 4.2, this shows that the perceptions of respondents on e-commerce adoption in terms of advertising, payment, electronic marketing, order and delivery, customer support service, and operational performance are very high for the success of startup businesses.

Variables	N	Mean	Std. Deviation
EA	84	4.24	0.434
ECSS	84	4.28	0.350
EM	84	4.42	0.300
EPS	84	4.34	0.374
EOD	84	4.41	0.310
EAOP	84	4.48	0.246
Total N	84		

## 4.5. Inferential Statistics Analysis

Descriptive statistics serve only to present the existing phenomenon based on the sample data. As the objective of this particular study was to examine the effect of Electronic Commerce Applications on the operational performance of new startups business firms, to realize it, it is necessary to conduct an inferential statistics analysis that can help us infer about the population-based on sample data.

Therefore, in this section of the study, correlation analysis and regression analysis were done to examine the relationship and cause and effect relation between the dependent variable and the independent variables incorporated in this study, respectively.

Therefore, in the econometric model of the regression analysis was done by taking adoption of the Operational Performance as a dependent variable and Electronic Advertising, Electronic Payment, Electronic marketing, Electronic Order and Delivery, and Electronic Customer Support Service as independent variables. Accordingly, the econometric model for this relationship can be presented as follows; EAOP

$$EAOP = \beta_0 + \beta_1 EA + \beta_2 ECSS + \beta_3 EM + \beta_4 EPS + \beta_5 EOD + \varepsilon_i$$

Where;  $\beta_0$  = the constant term or the intercept.

$\beta_1, \beta_2, \beta_3, \beta_4,$  and  $\beta_5$  are elasticity coefficients or the magnitude of the effect of the independent variables on the dependent variable.

EAOP= E-commerce adoption and Operational performance

EA= Electronic Advertising (EA)

ECSS= Electronic customer support service

EM= Electronic Marketing

EPS= Electronic Payment system

EOD= Electronic Order and delivery

$\varepsilon_i$  = The error term or the effect of the unobserved dependent variables on the dependent variable. (Random disturbance term)

#### 4.5.1. Test of P-value or normally distributed Likert scale data

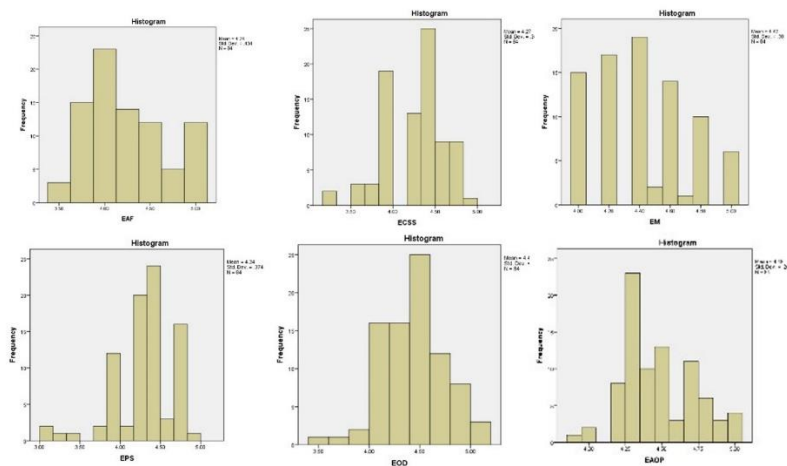
**Table 4.10. Test of Normality or P-value**

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
EA	.197	84	.000	.910	84	.000
ECSS	.164	84	.000	.946	84	.002
EM	.147	84	.000	.926	84	.000
EPS	.158	84	.000	.878	84	.000
EOD	.091	84	.080	.976	84	.110
EAOP	.166	84	.000	.942	84	.001

a. Lilliefors Significance Correction  
 Source: Survey Data Analysis Output

The study has fewer than 100 observations. According to the Shapiro-Wilk normality test, the data is statistically significant except EOD but not normally distributed Likert scale data, with p-values less than 0.05. Change the data to log10 to double-check normality; however, because the data is not normally distributed Likert scale data, the study employs a nonparametric approach and Spearman rank correlation analysis. One of the assumptions in multiple regression analysis utilizing the ordinary least square (OLS) approach is that the sample data comes from a non-regularly distributed population. Because errors are not normally distributed, a plot of residual values will not yield a normal. As a result, the data is not normally distributed, according to a histogram normality test (see figure 4.1).

**Figure 4.1. histogram normality test**



Source: Survey Data Analysis Output

#### 4.5.2. Nonparametric Correlations analysis among Variables

Correlation analysis helps researchers understand the direction and magnitude of the association that exists between the variables included in the regression model. Therefore, in this section of the study Correlation analysis between the dependent variable Operational performance and the five independent variables namely, Electronic Advertising, Electronic Payment, Electronic marketing, Electronic Order and Delivery, and Electronic Customer Support Service were done using the Spearman correlation analysis technique.

As it can be seen in Table 4.11 below the correlation matrix findings reveal that there exists a significant positive correlation between the dependent variable and the explanatory variables. Accordingly Electronic Order and delivery and Electronic Marketing exhibited a strong positive association with the dependent variable Operational Performance at a 1% significant level with correlation coefficient value of  $r = .774$  and  $r = .746$ , respectively. On other hand the result also revealed that Electronic Advertising(EA)s, Electronic Payment system and electronic customer support service have a statistically significant and moderate positive correlation with the dependent variable Operational Performance at 1% significant level with correlation coefficient  $r = .522$ ,  $r = .640$ , and  $r = .544$ , respectively.

#### 4.5.3 Nonparametric Correlations analysis

**Table 4.11. Nonparametric Correlations analysis**

			EA	ECSS	EM	EPS	EOD	EAOP
Spearman's rho	EA	Correlation Coefficient	1					
		Sig. (2-tailed)	.					
	ECSS	Correlation Coefficient	.231*	1				
		Sig. (2-tailed)	.035	.				
	EM	Correlation Coefficient	.461**	.493**	1			
		Sig. (2-tailed)	.000	.000	.			
	EPS	Correlation Coefficient	.387**	.515**	.665**	1		
		Sig. (2-tailed)	.000	.000	.000	.		
	EOD	Correlation Coefficient	.421**	.546**	.749**	.710**	1	
		Sig. (2-tailed)	.000	.000	.000	.000	.	
	EAOP	Correlation Coefficient	.522**	.544**	.746**	.640**	.774**	1
		Sig. (2-tailed)	.000	.000	.000	.000	.000	.

*Source: Survey Data Analysis Output*

Once the correlation analysis result confirms that there exists a significant correlation between the dependent variable and the explanatory variables the next step will be to determine the magnitude and dimension of the effect of the explanatory variables on the dependent variable through regression analysis.

#### **4.5.4. Multiple Linear Regression Analysis**

Here, multiple linear regressions with the ordinary least square (OLS) method were applied to find out the effect of the explanatory variables on the dependent variable. Such a technique is appropriate to make statements about how well one or more independent variables will predict the value of a dependent variable.

However, to come up with valid output and avoid spurious regression output using the ordinary least square (OLS) method, the data must fulfill all the five assumptions of this technique. Therefore, before the regression analysis, it is necessary to conduct a diagnosis test on the data against the five assumptions of the OLS.

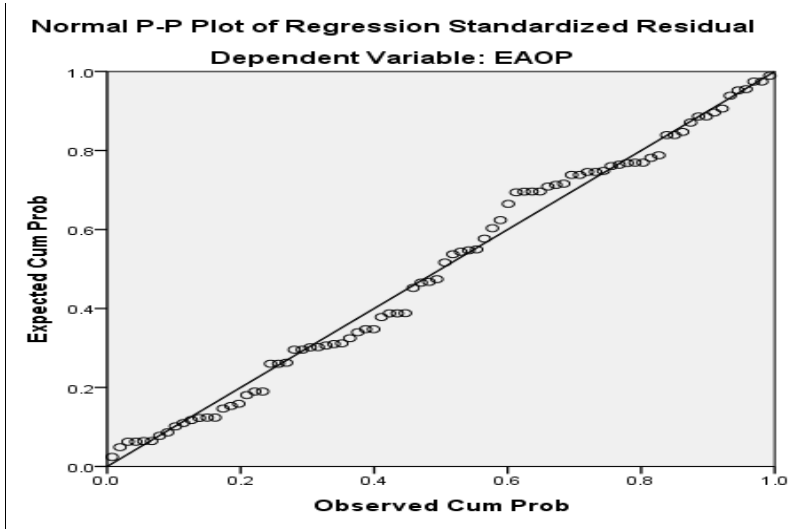
##### *4.5.4.1. Diagnosis Test Result*

Diagnosis tests were performed aiming to avoid invalid results. The diagnosis tests result revealed that the model has passed all the tests i.e., have no serial correlation, heteroscedasticity, multicollinearity, non-linearity non-normality.

### **Linearity**

In order to apply a multiple regression with ordinary least square (OLS) the relationship that exists between the dependent variable the independent variable need to be linear. In this study among the various methods of testing, linearity scatters plot diagram with the line of fit applied to see whether the relationship is linear. The result of the scatter plot diagram with a line of fit confirmed that a linear relationship existed between the dependent variable and those independent variables.

**Figure 4.2. Test of Linearity**

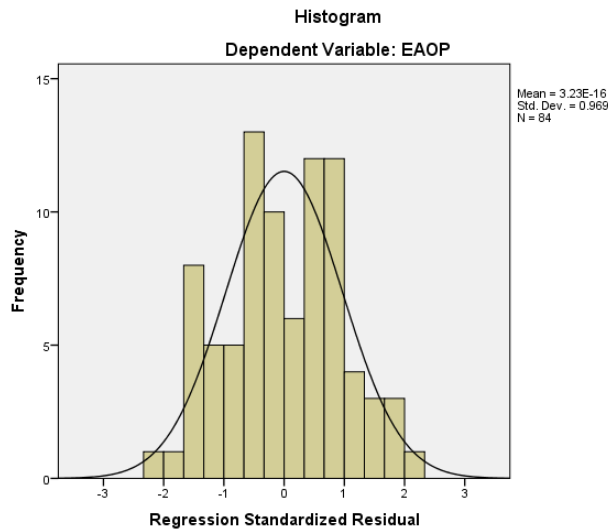


Source: Survey Data Analysis Output

## Normality

Since the number of observations is greater than 300 the whole data will be normally distributed. One of the assumptions in multiple regression analysis with the ordinary least square (OLS) method is that the sample data is obtained from the normally distributed population. This implies that errors are normally distributed and that a plot of the values of the residuals will approximate a normal curve (Keith, 2006). Accordingly, the normality test using a histogram (see figure 4.3) shows that the data is normally distributed.

**Figure 4.3. Test of Normality**



## Multicollinearity

The problem of Multicollinearity occurs when two or more variables giving rise to the same piece of information are included in the regression model. In another word, Multicollinearity is the result of unnecessary inclusion of related variables. A collinearity diagnostic test was conducted using regression analysis. Variance inflation factor (VIF) is commonly used to detect multicollinearity. In general, a VIF greater than 10 indicates a multicollinearity problem. An examination of VIF for variables in our model showed that multicollinearity was not a potential problem.

**Table 4.12. Test of Multicollinearity**

Model		Collinearity Statistics	
		Tolerance	VIF
1	EA	.774	1.293
	ECSS	.605	1.654
	EM	.398	2.514
	EPS	.552	1.811
	EOD	.390	2.563

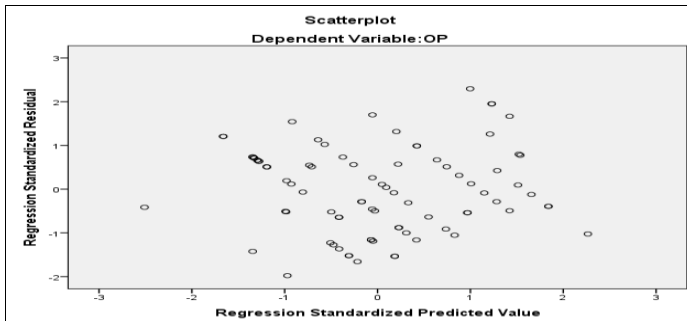
a. Dependent Variable: EAOP

Source: Survey Data Analysis Output

## Homoscedasticity

This assumption tells us that every disturbance has the same variance  $\sigma^2$  whose value is unknown, that is regardless of their size, the dispersion of the error term (disturbance) is the same. Whenever this assumption is violated, we will have the case of heteroscedasticity. Heteroscedasticity often occurs in cross-sectional data.

**Figure 4.4 Test of heteroscedasticity**



Source: Survey Data Analysis Output

As it can be seen in Figure 4.4 above the standardized residuals are evenly distributed confirming that the data has no heteroscedasticity problem.

### Autocorrelation

This assumption tells us that the error term at time  $t$  is not correlated with the error at any other point in time. This implies that when observations are made over time, the effect of the disturbance occurring at one period does not carry-over in into another period. The assumption of non-autocorrelation is reasonable in the case of cross-sectional data. Violation of this assumption frequently occurred in the case of time-series data. Durbin-Watson statistic is applied to test the assumption that our residuals are uncorrelated. The value of this statistic can fall between 0 to 4. For this assumption to be met, the DW value needs to be close to 2. Values below 1 and above 3 are problematic and cause for concern. Therefore, the data in this research is free from the problem of autocorrelation since the Durbin-Watson statistic is closer to 2.

**Table 4.13. Test of Error Autocorrelation**

Model Summary					
Model	R	R Square	Adjusted R Square	Std. The error of the Estimate	Durbin-Watson
1	.837 <sup>a</sup>	.701	.681	.13904	1.602
a. Predictors: (Constant), EOD, EA, ECSS, EPS, EM					
b. Dependent Variable: OP					

Source: Survey Data Analysis Output

Once we confirmed that our data fulfilled the five assumptions of OLS the next step is to do the regression analysis. Here, multiple linear regressions with the ordinary least square (OLS) method were applied to find out the effect of the explanatory variables on the dependent variable. Such a technique is appropriate to make statements about how well one or more independent variables will predict the value of a dependent variable.

In the regression model, five independent variables (Electronic Advertising, Electronic Payment, Electronic marketing, Electronic Order and Delivery, and Electronic Customer

Support Service) are considered as independent variables while Operational Performance is included as a dependent variable. These variables were measured on a five-point Likert scale.

After the linear regression analysis on the model, the adjusted R-squared value is revealed to be 0.68 indicating that about 68 percent of the variation in the operational performance is explained by changes in the explanatory variables. The result also indicates that the remaining 32% of the variation in the dependent variable can be explained by unobserved variables indicating that there are other variables that affect employees' performance other than those included in this model.

The regression model is also a good fit for the data as judged by the F test=36.456 (p-value=0.000 <1 percent). This confirms that the independent variables included in the regression model are good in predicting the dependent variable and the model is also adequate for the intended analysis implying that the result occurred not by chance.

**Table 4.14. Analysis of Variance**

<b>Model Summary</b>				
Model	R	R Square	Adjusted R Square	Std. The error of the Estimate
1	.837 <sup>a</sup>	.700	.681	.13912
a. Predictors: (Constant), EOD, EA, ECSS, EPS, EM				

Source: Survey Data Analysis Output

**Table 4.15. Analysis of Variance**

<b>ANOVA</b>						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	3.528	5	.706	36.456	.000 <sup>b</sup>
	Residual	1.510	78	.019		
	Total	5.038	83			
a. Dependent Variable: EAOP						
b. Predictors: (Constant), EOD, EA, ECSS, EPS, EM						

Source: Survey Data Analysis Output

Here, OLS is applied and, hence the elasticity coefficients have been captured. Table 4.16, below presents the elasticity coefficients of the explanatory variables in the model adopted. The estimated result revealed that all of the explanatory variables have a significant positive effect on the dependent variable employees' performance.

The coefficient of determination (R-square) value shows the overall predicting power of the independent variables on the dependent variable. In order to know the magnitude and significance of the effect of each independent variable on the dependent variable, it will be necessary to capture the elasticity coefficient or value of the Beta coefficient of each independent variable using regression analysis. The regression coefficient explains the average amount of change in the dependent variable that occurred due to a unit of change in an independent variable and its direction. Therefore, the larger value of the Beta coefficient indicates the larger effect of an independent variable on the dependent variable while the smaller P-Value is the strength of the significance of the effect of an independent variable on the dependent variable.

The relative importance of each independent variable or the magnitude and the degree of significance of the effect of each independent variable on operational performance (dependent variable) was explained by the standardized Beta coefficients and its P-Values, respectively.

**Table 4.16. Regression Analysis Results**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.150	.251		4.582	.000
	EA	.144	.040	.253	3.594	.001
	ECSS	.089	.054	.126	1.640	.105
	EM	.234	.081	.285	2.899	.005
	EPS	.016	.056	.025	.291	.772
	EOD	.279	.081	.351	3.449	.001
a. Dependent Variable: OP						

*Source: Survey Data Analysis Output*

In this regard as depicted in table 4.16 above three of the five dependent variables namely; Electronic Advertising, Electronic marketing, and Electronic Order and Delivery have been confirmed to have a statistically positive effect on operational performance. Whereas Payment and Electronic Customer Support Service do not have any statistically significant effect on operational performance.

As revealed by the regression analysis Electronic Order and Delivery was found to have a relatively higher positive significant effect on the operational performance of the new startup businesses with elasticity coefficient ( $\beta=.279$ ) and P-Value= .000. This implies that when other independent variables remain unchanged a unit increase in Electronic Order and Delivery leads to .279-unit improvement on operational performance. This finding is in agreement with the finding of (Jahanshahi, 2011) that Electronic Order and Delivery has a positive and significant effect on operational performance with elasticity coefficient ( $\beta=.166$ ) and P-Value= .010 but in contradiction with the finding of (Oduor, C. O., Mulili, B., & Yano, M. R., 2020) that indicated that Electronic Order and Delivery has no any significant effect on operational performance. Next to Electronic Order and Delivery, Electronic marketing, with  $\beta$  value of .234 and P-Value of .000 revealed to have a positive and statistically significant effect on operational performance at a 1 percent significant level, indicating that electronic marketing is the second important e-commerce factor in influencing operational performance. The result can be interpreted as when other independent variables remain constant a unit increase in electronic marketing leads to a 23.4 units improvement in the operational performance of new startup businesses. This finding is consistent with the finding of (oduor & Yano, 2020 and Jahanshahi et al, 2011) that electronic marketing has a positive statistically significant effect on operational performance with elasticity coefficient ( $\beta=.391$ ) and P-Value= .000 and  $\beta=.013$ ) and P-Value= .000, respectively. Being the third important electronic commerce instrument with an elasticity coefficient  $\beta=.144$  and P-Value of .000 electronic Advertising (EA) was found to have a significant positive effect on the operational performance of new startup businesses at a 1 percent significant level. The interpretation is that when other independent variables remain constant, a unit increase in electronic Advertising (EA) causes a 23.4units improvement in operational performance of new startup businesses. This finding is in line with the finding of (Jahanshahi et al, 2011) that the electronic Advertising (EA) has a positive and significant effect on operational performance with an elasticity coefficient ( $\beta=.240$ ) and P-Value= .000.

Therefore, the fitted regression model of this study can be presented as follows;

$$OP = 1.150 + .144EA + .089 ECSS + .234EM + .016EPS + .279EOD$$

## Independent Samples t-Test

The Independent Samples t-Test compares the means of two independent groups in order to determine whether there is statistical evidence that the associated population means are significantly different.

### 4.5.4 Independent Samples Test for gender

**Table 4.17. Independent Samples Test for gender**

		Levene's Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	t	df	Sig. (2-tailed)
EA	Equal variances assumed	0.113	0.74	-0.37	82	0.713
ECSS	Equal variances assumed	1.295	0.23	-1.796	82	0.076
EM	Equal variances assumed	1.289	0.26	-0.629	82	0.531
EPS	Equal variances assumed	2.455	0.12	-1.661	82	0.101
EOD	Equal variances assumed	0.311	0.58	-0.69	82	0.492
EAOP	Equal variances assumed	0.096	0.76	-0.64	82	0.524

Source: own survey, 2021

According to the above table 4.17 the result of Levens test for EA, ECSS, EM, EPS, EOD, and EAOP indicate that the variance of the two populations are assumed to be approximately equal for the significant level larger than 0.05. and the results of the independent T-test were not significant at p greater than 0.05 which indicate that there is no significant difference between the scores of males and the scores of females on the variable of EA, ECSS, EM, EPS, EOD, and EAOP. The researcher failed to reject the null hypothesis.

### 4.5.5 Nonparametric hypothesis Tests for age of the respondent

**Table 4.18. Nonparametric hypothesis Tests for age of the respondent**

	Null hypothesis	test	Sig.	decision
1	The distribution of EA is the same across categories of age.	Independent samples Kruskal Wallis test	0.156	Retain the null Hypothesis.
2	The distribution of ECSS is the same across categories of age.	Independent samples Kruskal Wallis test	0.031	Reject the null Hypothesis.
3	The distribution of EM is the same across categories of age.	Independent samples Kruskal Wallis test	0.005	Reject the null Hypothesis.
4	The distribution of EPS is the same across categories of age.	Independent samples Kruskal Wallis test	0.013	Reject the null Hypothesis.

5	The distribution of EOD is the same across categories of age.	Independent samples Kruskal Wallis test	0.000	Reject the null Hypothesis.
6	The distribution of EAOP is the same across categories of age.	Independent samples Kruskal Wallis test	0.003	Reject the null Hypothesis.

*Source: own survey, 2021*

According to the above table 4.18 to the Kruskal Wallis independent sample test, the null hypothesis for the distribution of EA across age categories is retained only because the significance threshold is greater than 0.05. We reject the null hypothesis that the distributions of ECSS, EM, EPS, EOD, and EAOP are the same across age groups since the significance level is less than 0.05.

#### **4.5 Nonparametric hypothesis Tests for age of the business firm**

**Table 4.19. Nonparametric hypothesis Tests for age of the business firm**

	<b>Null hypothesis</b>	<b>test</b>	<b>Sig.</b>	<b>decision</b>
1	The distribution of EA is the same across categories of firm age.	Independent samples Kruskal Wallis test	0.000	Reject the null Hypothesis.
2	The distribution of ECSS is the same across categories of firm age.	Independent samples Kruskal Wallis test	0.000	Reject the null Hypothesis.
3	The distribution of EM is the same across categories of firm age.	Independent samples Kruskal Wallis test	0.000	Reject the null Hypothesis.
4	The distribution of EPS is the same across categories of firm age.	Independent samples Kruskal Wallis test	0.000	Reject the null Hypothesis.
5	The distribution of EOD is the same across categories of firm age.	Independent samples Kruskal Wallis test	0.000	Reject the null Hypothesis.
6	The distribution of EAOP is the same across categories of firm age.	Independent samples Kruskal Wallis test	0.000	Reject the null Hypothesis.

*Source: own survey, 2021*

According to table 4.19, Because the significance level is less than 0.05, the Kruskal Wallis independent sample test rejects all null hypotheses for the distribution of EA, ECSS, EM, EPS, EOD, and EAOP is the same across categories of firm age.

The regression analysis result answered each of the six-research hypotheses. Accordingly, the summary of the result of the research hypothesis is presented in table 4.20 below;

**Table 4.20. summary of the result of the research hypothesis .001**

Sr.no	Research Hypothesis	Significance Or p-value	Result
1	Electronic Advertising has a significant and positive effect on the operational performance of new startups business firms.	.001	Rejected
2	Electronic Customer Support Service has a significant and positive effect on the operational performance of new startups business firms.	.105	Don't Reject
3	Electronic marketing has a significant and positive effect on the operational performance of new startups business firms.	.005	Rejected
4	Electronic Payment System has a significant and positive effect on effect operational performance of new startups business firms.	.772	Not reject
5	Electronic order and delivery have a significant and positive effect on the operational performance of new startups business firms.	.001	Rejected

*Source: Survey Data Analysis Output*

## CHAPTER FIVE

### Summary of Findings, Conclusion, and Recommendation

This section of the study presents the summary of the basic findings, the conclusion drawn from the study found, and recommendations forwarded by the researcher.

#### 5.1. Summary of the Research Findings

The major purpose of this study was to examine the effect of adoption of e-commerce on the operational performance of new startup businesses in Addis Ababa, Ethiopia, with the specific objective of examining the effect variables Electronic Advertising, Electronic Payment, Electronic marketing, Electronic Order and Delivery, and Electronic Customer Support Service on the operational performance of new startup businesses. Therefore, under this section of the study the basic summary of the study findings were presented as follows;

- Regarding the overall utilization of e-commerce as a factor of advertising of the new startup business firms as described by the average rating of all the four statements was rated as very high level as judged by the respondents with a mean score value of 4.24 (**Std. Deviation =.43**). In general, the result confirmed that new startup firms use e-commerce as a mane of advertising was a very high extent.
- As perceived by the respondents, the overall adoption of e-commerce for customer support service was on average at a very high extent with a mean score value of 4.28 (**Std. Deviation =.35**). In general, the use of e-commerce for customer support service by new startup business firms was rated as very good.
- The descriptive statistics result confirmed that overall, as judged by the respondents, the adoption of e-commerce by new startup firms as a mane of marketing option was at a very high level with a mean score value of 4.42 (**Std. Deviation =.30**).
- Overall, as perceived by the respondents the average use of e-commerce as a means of payment by the new startup firms was rated as high with the mean score point of 4.30 (Std. Deviation =.40).
- The overall status of the use of e-commerce by the new startup business as a means order and delivery of goods was rated as very high with mean score points of 4.41 (**Std. Deviation =.31**).

- On average the effect of e-commerce adoption on the success/performance of new business startups was confirmed to be very high in the view of the respondents with mean score points of 4.50 (**Std. Deviation =.25**).
- Moreover, the overall descriptive statistics analysis result shows that the level of adoption of e-commerce in terms of Advertising, Payment, electronic marketing, Order and Delivery, and Customer Support Service as well as the operational performance of the new startup business firms was also found at a very high level.
- The effect of e-commerce adoption on operational performance was examined through multiple regression analysis using the ordinary least square (OLS) technique. Therefore, in the econometric model of the regression analysis was done by taking operational performance as a dependent variable while Electronic Advertising, Electronic Payment, Electronic marketing, Electronic Order and Delivery, and Electronic Customer Support Service have been included as the independent variable in the econometric model.
- The diagnosis analysis on the five assumptions of OLS revealed that the data deployed in this study was obtained from normality distributed sample respondents and the relationship between the dependent variable and independent variable is linear. In addition, the data was confirmed to be free from multicollinearity, error autocorrelation, and heteroscedasticity. This result indicates the analysis result is reliable.
- After the linear regression analysis on the model, the adjusted R-squared value is revealed to be 0.68 indicating that about 68 percent of the variation in the operational performance is explained by changes in the explanatory variables. The result also indicates that the remaining 32% of the variation in the dependent variable can be explained by unobserved variables indicating that there are other variables that affect employees' performance other than those included in this model.
- The regression model is also a good fit for the data as judged by the F test=36.456 (p-value= 0.000 <1 percent). This confirms that the independent variables included in the regression model are good in predicting the dependent variable and the model is also adequate for the intended analysis implying that the result occurred not by chance.
- The regression analysis result revealed that three of the five dependent variables namely; Electronic Advertising, Electronic marketing, and Electronic Order and Delivery have been confirmed to have a statistically positive effect on operational performance.

Whereas Payment and Electronic Customer Support Service do not have any statistically significant effect on operational performance

- The correlation matrix findings reveal that there exists a significant positive correlation between the dependent variable and all the explanatory variables.
- Accordingly Electronic Order and delivery and Electronic Marketing exhibited a strong positive association with the dependent variable Operational Performance at a 1% significant level with correlation coefficient value of  $r = .774$  and  $r = .746$ , respectively.
- On other hand the result also revealed that Electronic Advertising(EA)s, Electronic Payment system and electronic customer support service have a statistically significant and moderate positive correlation with the dependent variable Operational Performance at 1% significant level with correlation coefficient  $r = .522$ ,  $r = .640$ , and  $r = .544$ , respectively.
- According to the regression analysis result, Electronic Order and Delivery was found to have a relatively higher positive significant effect on the operational performance of the new startup businesses with elasticity coefficient ( $\beta = .279$ ) and P-Value = .000.
- Next to Electronic Order and Delivery, Electronic marketing, with  $\beta$  value of .234 and P-Value of .000 revealed to have a positive and statistically significant effect on operational performance at a 1 percent significant level, indicating that electronic marketing is the second important e-commerce factor in influencing operational performance.
- Being the third important electronic commerce instrument with an elasticity coefficient  $\beta = .144$  and P-Value of .000 electronic Advertising (EA) was found to have a significant positive effect on the operational performance of new startup businesses at a 1 percent significant level.

## **5.2. Conclusion**

The main purpose of this study was to examine the effect of the adoption of e-commerce on the operational performance of new startup businesses in Addis Ababa, Ethiopia. Therefore, based on the study findings and the discussions on the study findings the following conclusions have been

- Based on the study findings it is concluded that the adoption of all the five components e-namely; Electronic Advertising, Electronic Payment, Electronic marketing, Electronic Order and Delivery, and Electronic Customer Support Service commerce in new startup business had at a very high extent.
- The study concluded that the adoption of e-commerce, in general, had considerable effect on the operational performance of new startup businesses.
- The study concluded that the adoption of e-commerce as a Payment and Customer Support Service had no considerable effect on the operational performance of new startup businesses.
- The study also concluded that the adoption of e-commerce as means of Order and Delivery was the first most important predictor of operational performance of new startup businesses.
- It is also concluded that the adoption of e-commerce as means of marketing was the second most important predictor of operational performance of new startup businesses.
- Finally, the study also concluded that the adoption of e-commerce as means of Advertising was the third most important predictor of operational performance of new startup businesses.

## **5.3. Recommendation**

Based on the basic research findings of the study and the discussions made on the research findings the researcher has forwarded the following recommendations.

- Based on the findings, the study recommended for the new startup business not to focus on the adoption of e-commerce as a Payment channel. This is because this factor of e-commerce was observed to have no considerable effect on the performance of the firm.

- Similarly, the organization should also not focus its effort on adopting e-commerce as a means of Customer Support Service due to its insignificant role in influencing the firm's performance.
- The study recommended an increased use in web/internet-supported Order and Delivery. Because e-commerce adoption as means of online order and delivery of goods and services is the first most important component of e-commerce in influencing the operational performance of new startup businesses.
- New startup businesses are also recommended to increase their use of online marketing like email marketing approach to help personalize its marketing approach and enhance its performance.
- New startup businesses are also recommended to increase their use of social media as an advertising factor so as to bring about the intended enhancement in performance.

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## **Annex 1: Consent Form**

**Addis Ababa University**

**College of Business and Economics**

**Department of Management**

**Questionnaires to be filled by employees of new start-up business firms (aged five years since they are established), who applied e-commerce in their business process and located in Addis Ababa.**

**Dear Respondents:** thank you in advance for devoting your precious time to answer my questions. The purpose of this questionnaire is to collect primary data for conducting a study related purpose on *E-commerce applications* Secondly, it is a precondition for the partial fulfillment master's degree of Management at Addis Ababa university college of Business and Economics, Department of Management. This study is purely for academic purpose only and in no ways that affects you or the respondent's personality. I also like to assure that your response is confidential and never be passed to the third party before analysis completed. Therefore, you are genuinely requested to view, to provide frank opinion and timely responses are very valuable in determining the success of the study. Please you are kindly requested to take your time and carefully complete the questionnaire. Don't write your name on any page of the questionnaire. Only use a "√" mark to indicate your response for items with alternative responses.

If you want further clarifications, please don't hesitate to contact me on 0912607217

Thank You for your kindly cooperation!

Best Regards,

Teshome Guangul

## Annex 2: Interview

### Part I descriptions of demographic information's

1. Age of the respondents
  - a. Less than 20
  - b. 21-30 years
  - c. 31-40 years
  - d. Above 40 years
2. Gender
  - a. Male
  - b. Female
3. Age of the firm
  - a. Less than 2 years
  - b. 2-4 years
  - c. Above 4 years

### Part II. Questions on the E-commerce application and Operational Performance

Directions: Rate the degree of your agreement for the statements included in the table below. Use a “√” mark to indicate your answer. (Key to number: 5= very Agree, 4= Agree, 3= neutral, 2=Disagree, 1= very disagree)

No		Response Rates				
		<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
<b>I</b>	<b>Electronic Advertising (EA)</b>					
4	My organization uses Electronic Advertisements to provide product information to customers	<b>EA1</b>				
5	My organization displays company information on website or social-media	<b>EA2</b>				
6	My organization uses on-line electronic brochures or buying guides	<b>EA3</b>				
7	My organization uses Electronic Advertisements to display only a range a product which are relevant to the particular customer	<b>EA4</b>				
<b>II</b>	<b>Electronic customer support service (ECSS)</b>					

No			Response Rates				
			<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
8	My organization uses e-commerce or electronic customer support service to Online help- frequently asked question	<b>ECSS1</b>					
9	My organization uses e-commerce or electronic customer support service to online products update online order	<b>ECSS2</b>					
10	My organization uses e-commerce in handling customer feedback/queries online	<b>ECSS3</b>					
11	My organization uses e-commerce for online application/registration.	<b>ECSS4</b>					
12	My organization uses e-commerce for personalized e-mail communication.	<b>ECSS5</b>					
<b>III</b>	<b>Electronic Marketing (EM)</b>						
13	My organization uses e-commerce to allowing a customer to contact a sales office.	<b>EM1</b>					
14	My organization uses e-commerce to share information with competitors, customers and suppliers.	<b>EM2</b>					
15	My organization uses e-commerce (internet) to find out customers' needs and wants.	<b>EM3</b>					
16	My organization uses e-commerce (internet) for anticipating customer needs.	<b>EM4</b>					
17	My organization uses e-commerce (internet) for achieving customer satisfaction.	<b>EM5</b>					
<b>IV</b>	<b>Electronic Payment system (EPS)</b>						
18	My organization uses Cash transfer programs like Hello Cash, EMS Ethiopia	<b>EPS1</b>					
19	My organization uses Electronic Fund Transfer (EFT) like POS, ATM	<b>EPS2</b>					
20	My organization use e-banking and mobile payment system like M-birr, Tele-birr, internet banking.	<b>EPS3</b>					
21	My organization uses Smart and prepaid card.	<b>EPS4</b>					
<b>V</b>	<b>Electronic Order and delivery (EOD)</b>						

No			Response Rates				
			<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
22	My organization uses e-commerce to coordinating procurement with suppliers online.	<b>EOD1</b>					
23	My organization uses e-commerce to On-line ordering of products.	<b>EOD2</b>					
24	My organization uses e-commerce to Lower costs per business transaction.	<b>EOD3</b>					
25	My organization uses e-commerce to tracking incoming and outgoing goods delivery.	<b>EOD4</b>					
26	My organization uses e-commerce to Online order entry and delivery.	<b>EOD5</b>					
27	My organization uses e-commerce to Electronic Data Interchange (EDI).	<b>EOD6</b>					
<b>VI</b>	<b>E-commerce adoption and Operational performance (EAOP)</b>						
28	The use of e-commerce has enabled my organization to improve the market share.	<b>EAOP1</b>					
29	The use of e-commerce has contributed to increased profitability in my organization.	<b>EAOP2</b>					
30	E-commerce usage has led to increase in sales volume of my organization.	<b>EAOP3</b>					
31	The use of e-commerce has improved interactions with and among customers.	<b>EAOP4</b>					
32	E-commerce has led to decreased fraud in my organization.	<b>EAOP5</b>					
33	The use of e-commerce has resulted into improved competitiveness of my organization.	<b>EAOP6</b>					
34	The use of e-commerce has improved communication in my organization.	<b>EAOP7</b>					
35	The use of e-commerce has led to new business opportunities in my organization.	<b>EAOP8</b>					
36	The use of e-commerce has led to cost reduction in my organization.	<b>EAOP9</b>					
37	The use of e-commerce has enhanced our linkages with business partners.	<b>EAOP10</b>					