IDENTIFYING TRENDS ON GLOBAL ONLINE TO OFFLINE (O2O) E-COMMERCE RESEARCH: A BIBLIOMETRICS ANALYSIS

JOCELYN TAN YING YING

BACHELOR OF INTERNATIONAL BUSINESS (HONS)

UNIVERSITI TUNKU ABDUL RAHMAN

FACULTY OF ACCOUNTANCY AND MANAGEMENT
DEPARTMENT OF INTERNATIONAL BUSINESS

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JOCELYN TAN YING YING ONLINE TO OFFLINE (BIN) HONS NOVEMBER 2019

IDENTIFYING TRENDS ON GLOBAL ONLINE TO OFFLINE (O2O) E-COMMERCE RESEARCH: A BIBLIOMETRICS ANALYSIS

BY

JOCELYN TAN YING YING

A final year project submitted in partial fulfilment of the requirement for the degree of

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DECLARATION

I hereby declare that:

(1) This undergraduate FYP is the end result of my own work and that due acknowledgement has been given in the references to ALL sources of information be they printed, electronic, or personal.

(2) No portion of this FYP has been submitted in support of any application for any other degree or qualification of this or any other university, or other institutes of learning.

(3) The word count of this research report is 17693.

Name of student	Student ID	Signature
1. Jocelyn Tan Ying Ying	1600585	_____

Date: 29 November 2019

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This study has been successfully completed by the assistance of various authorities. Therefore, I would like to take this opportunity to thank those who have directly or indirectly helped me to complete this study. I am thankful to Universiti Tunku Abdul Rahman (UTAR) giving me the opportunity to conduct this Final Year Project which title Identifying Trends on Global Online to Offline (O2O) E-commerce Research: A Bibliometric Analysis.

Besides, I would like to express my deepest thanks and gratitude to my beloved supervisor, Dr. Hen Kai Wah for his support and guidance. He always gives me support and invested his full effort in guiding me to understand the things that I should know while writing my research project. His understanding of bibliometric field which guide me to overcome the problems that I faced while completing this research project. I am truly appreciating the valuable time, guidance and advice he has given me.

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Lastly, I would like to express gratitude to all my families and friends that have been fully support to this research project, from the beginning till the end.

DEDICATION

I would like to express our sincere gratitude to my supervisor, Dr. Hen Kai Wah for his valuable guidance, suggestions, encouragement and help me to complete this research project.

Besides, I would like to dedicate this research project to my family members and friends to share with my achievement in this research project as an appreciation for their encouragement and support throughout this period of research project.

Lastly, I would like to dedicate this research project to the researchers who had did this related topic previously. This give me a lot of information on this emerging topic.

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List of Abbreviations

O2O	Online to Offline
B2B	Business to Business
B2C	Business to Customer
C2B	Customer to Business
C2C	Customer to Customer

Preface

This research project is submitted in partial fulfillment of the requirement for the degree of Bachelor of International Business (HONS) at Universiti Tunku Abdul Rahman (UTAR). This research paper is conducted under the supervision of Dr. Hen Kai Wah. This study provides a detailed explanation of my topic I completed towards accomplishing my project goals.

The title for this report is “Identifying Trends on Global Online to Offline (O2O) E-commerce Research: A Bibliometric Analysis”. This is emerging research topic related e-commerce so far there have not many studies has been carried out to examine the research trend in this area.

Firstly, this study begins by introducing the topic selected and explaining the O2O e-commerce emerging. This study will explain the concept of different type of e-commerce and bibliometric studies. Next, the data collection method is using bibliometric study on secondary data which are academic journal information. The data process will login in to Scopus via UTAR library online database, by using the keyword of “online to offline”, “online to offline e-commerce”, “O2O” and “O2O e-commerce”. The information of the articles was downloaded into Excel file for data coding and analysis. The results of the findings will provide a research direction to the researchers in term of popular keyword, top journal citation and the pattern of collaboration. As a conclusion, this research paper has concluded the overall test results, policy implications, limitations and recommendations.

Abstract

Nowadays, e-commerce has become the novel trend in the world. Therefore, this resulted more researchers will contribute more article to the relevant research. Thus, this research was conducted to further study and understand the trend on global O2O in Malaysia and globally. Moreover, by having a better understanding on this emerging topic O2O can help researchers to investigate the topic and conduct further relevant research.

In this research, I have using 1 database which is Scopus to collect the secondary data. The data collected have 468 articles and the period to collect data is from August 16 to October 24, 2019. Last but not least, there are few major findings found after the analyses were conducted. It can be concluded that the trend on O2O is keep increasing by year, the promote patter of collaboration is domestic collaboration and global collaboration and the popular keyword is O2O and e-commerce.

Lastly, this study may provide some useful contributions for future researchers. For future researchers who intend to conduct a similar study, they may be able to get a better and more reliable results after taking into account the limitations of this study.

Keywords: Online to Offline, E-commerce, Bibliometric

CHAPTER 1: RESEARCH OVERVIEW

1.0 Introduction

This research aims to examine the emerging trends on global online to offline (O2O) e-commerce research via bibliometric study on the method published in the online Scopus database. O2O is an upcoming e-commerce related topic in China and globally. A total of 468 e-commerce articles were extracted from the Scopus database for the purpose of this research. The trends of current study are mapped by evaluating these articles, revealing the highly influential research article. This paper also shows theories used in research paper on e-commerce. The results provide fundamental insights into recent studies into e-commerce. In this chapter, research background, problem, objectives and question, significance of the study, the definition of terms and chapter layout will be discussed.

1.1 Research Background

Nowadays, individuals living in the smart digital era where info and communication technologies (ICT), is becoming more and more significant. ICT is also essential for individual daily life, not only for company purposes ("Importance of Information and Communications Technology (ICT) In Our Daily Life", 2016). Due to, with the exponential development of mobile phone and social society, social media and mobile devices not only alter how individuals interact with friends but also alter the way suppliers interact with customers. Millions of people around the world use the Internet to do everything from research to the online purchase of goods (Terzi, 2011). The ubiquity of connecting individuals dramatically shifts the post-electronic commerce landscape. Thus, in recent year, mobile trade and social trade are developed. Through their mobile devices, people can search for products prices from websites, request experience from the social group and discover closest bricks and mortar through location-based service (Tsai, Wang, Lin, & Choub, 2015).

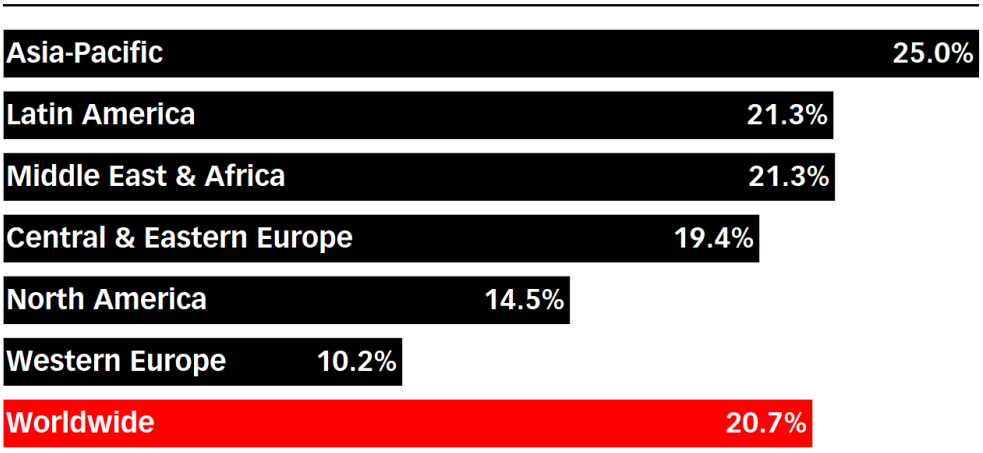
E-commerce gives both developed and developing countries economic benefits. Indeed, there was some doubt as to the relevance of e-commerce to developing countries. The lack of adequate infrastructural, socio-economic basics and the lack of national government ICT policies have created a major barrier to the adoption and development of e-commerce in developing countries (Wresch & Fraser, 2011). For example, firms in developed countries have a relatively well-developed, accessible and reasonable infrastructure, whereas e-commerce adoption has been restricted in most developing countries by the standard, accessibility and cost of access to such infrastructure (Humphrey, Mansell, Paré, Schmitz, & Humphrey, 2003). The low level of ICT diffusion in an economy can also restrict the level of consciousness of e-commerce, a factor taken for granted in developed countries.

Moreover, Internet use and e-commerce procedures have yet to achieve a critical mass for network externalities to take impact in most developing nations and

promote companies to look for innovations in e-commerce (Molla & Licker, 2005). Furthermore, most businesses in developing countries are small. Their absence of complexity may promote the implementation of e-commerce, but this also implies that there are insufficient resources to invest in IS and IT and absorb future failures (Enns & Huff, 1999). The apply of conducting business electronically, addressing non-cash payments, intra- and inter-business anonymous and electronic-based relationships, all of that are essential in e-commerce, is not common to developing-country companies (Molla & Licker, 2005).

In 2019, even with China's previously strong consumer economy falling slightly, Asia-Pacific will still lead the global growth charge for e-commerce. Economists expect the region to rise by 25.0% to $2,271 trillion, accounting for 64.3% of global e-commerce spending. Latin America and the Middle East/ Africa will experience the same growth rates of 21.3 percent year-over-year, slightly above the global average, while North America (up 14.5 percent) and Western Europe (up 10.2 percent) are late adopters (Lipsman, 2019).

Figure 1.0 Retail E-commerce Growth throughout The World, by Region 2019

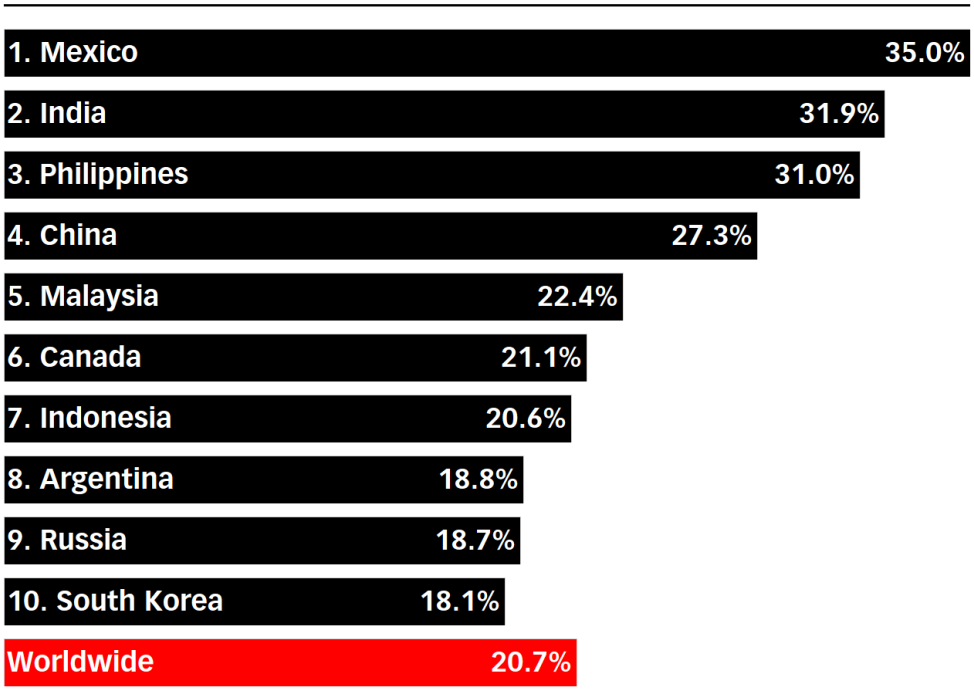


Source: eMarketer, May 2019

Additionally, the e-commerce industry is growing steadily throughout the world. Six of the top 10 fastest-growing e-commerce countries came from the Asia-Pacific

region, led by India and the Philippines with the growth of more than 30 percent and rounded off by China, Malaysia, Indonesia and South Korea. India is one of the countries that have a positive impact by e-commerce. Through these tools, they enhance their education standard, country's economy, and lifestyle and invest more technology infrastructure (Suresh, 2019). Latin America boasts the world's top-growing e-market - Mexico at 35.0% and Argentina's No. 8. Even more developed e-commerce regions such as North America (21.1% growth in Canada) and Europe (18.7% growth in Russia) claimed spots in the top 10 (Lipsman, 2019).

Figure 1.1 Top 10 Countries, Ranked by Retail E-commerce Sales Growth, 2019



Source: eMarketer, May 2019

Although the Asia-Pacific region fastest booming e-commerce but the world's top e-market will be China, with e-commerce revenues of $1,935 trillion - more than three times more than the US of $586.92 billion in No. 2. In 2013, China just recently surpassed the US for the first time in e-commerce revenues. Since then, China represents 54.7 % of the global e-market, nearly twice as much as the next

five countries combined. Western Europe owns three of the top six e-commerce markets, led by the United Kingdom ($141.93 billion), Germany ($81.85 billion) and France ($69.43 billion), but as mature markets expand at annual levels well below the growth rate of global e-commerce (Lipsman, 2019). It compares with the relatively advanced internet market in Canada, where strong growth levels continue to be seen. The worldwide e-commerce market No. 8 will rise to $49.80 billion in 2019 by 21.1 million.

Due to logistical inefficiencies, e-commerce has historically lagged in the industry where Canada's growing technological sophistication. The geographically dispersed population of Canada from its western to eastern borders has made it more cost-prohibitive to develop distribution centers for e-commerce and delivery capabilities. Recent improvements are now helping to drive the change in internet spending (Lipsman, 2019). Although India is one of the world's largest economies, its e-commerce market is relatively small, mainly due to a lower-income population and lacking the infrastructure to support payment and distribution.

Figure 1.2 Top 10 Countries, Ranked by Retail E-commerce Sales, 2018 & 2019

	2018	2019	% change
1. China*	$1,520.10	$1,934.78	27.3%
2. US	$514.84	$586.92	14.0%
3. UK	$127.98	$141.93	10.9%
4. Japan	$110.96	$115.40	4.0%
5. South Korea	$87.60	$103.48	18.1%
6. Germany	$75.93	$81.85	7.8%
7. France	$62.27	$69.43	11.5%
8. Canada	$41.12	$49.80	21.1%
9. India	$34.91	$46.05	31.9%
10. Russia	$22.68	$26.92	18.7%

Source: eMarketer, May 2019

The outstanding leader of e-commerce nation is China led by the Alibaba group's e-commerce subsidiaries, Taobao, Alibaba.com, Tmall and others (Bhatia, 2016). There are more than 40% of e-commerce transaction are taking place at there. The second-biggest e-commerce nation is the US, led by Amazons & eBay (Bhatia, 2016). During 2015, Alibaba association of strategic alliance with Suning Commerce Group to extend its online-to-offline reach (Flora, 2017). Besides, Amazon's acquisition of Whole Foods, which is a prime testament of O2O in 2017. This is because Amazon believes that most sales still happen in physical stores, despite consumers are relying on online shopping (O'Brien, 2018).

Figure 1.3 Retail E-commerce Sales, Worldwide

Source: *eMarketer/The Economist*

Recently, the emerging commerce model is "online-to-offline" (O2O) commerce. The business strategy of online-to-offline (O2O) commerce is to draws potential consumers from online channels to purchase in physical stores (Hayes, 2019). There have various ways to identify consumers in the online space and entice the consumers to leave the online space such as through, emails and online advertising (Hayes, 2019). The methods offered by retailers to encourage online shoppers to

consume in brick-and-mortar stores including in-store cash payment, testing, and fitting, free shipping, web-returned center, pick-up location or center for online sale in their actual retail stores. The retailers can revise the strategy depending on the product lines they are selling (Alvin, 2018). On the other hand, when consumers are in physical stores, online retailers also want to attract people placing orders from their mobile device (Tsai et al., 2015).

E-commerce's booming development needs security capital flow guarantee, and e-commerce's online electronic payment has become a key link (Yang, 2014). The development of e-commerce, therefore, starves the support of financial institutions, technology, and online payment intermediation businesses. Building Internet banking has thus not only become an inevitable trend, but also the basis for the smooth growth of e-commerce. Hence, e-commerce research trend is focusing by most universities and colleagues. To enhance education standard and assist the students to access digital resources that contribute to education research.

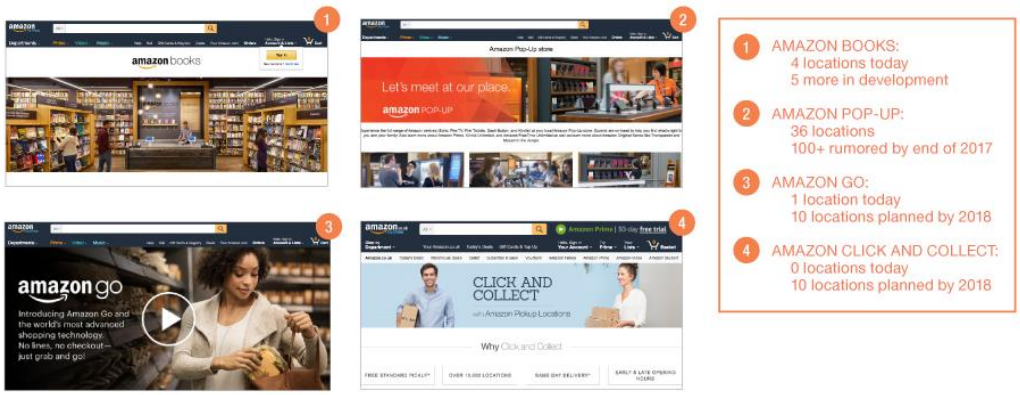
1.1.1 Global trends of O2O

A comparison between Amazon and Alibaba's effort shows that China is much more on its way to becoming the world's first omnichannel market than the US (Flora, 2017). The reason is because partnerships of Alibaba have developed maturely in the brick-and-mortar world. Alibaba and JD, respectively Hema and 7Fresh, are quickly opening retail stores across the nation. Both brands give a broad variety of experiential shopping that is digitally connected (Fan, Backaler, Digital Trade, World Economic Forum LLC, & Frontier Strategy Group, 2018). For example, consumers can use their mobile device to scan any item in the store's barcode to learn about the source, nutritional information, and price of the product. Delivery in both

shops is accessible in as little as 30 minutes after customers have made their purchases.

Conversely, Amazon just starts testing mobile payments via Alipay with QR code-scanning (Flora, 2017). Next, Wal-Mart also has tried to close the gap between online shoppers and offline shoppers through purchase Jet.com, e-commerce Company in 2016. Due to, approximately 80% of customers will search the product online before deciding to buy, and the future lies in a convergence between online and offline sales (Hayes, 2019). In addition, Amazon also produced some extremely promoted movements in U.S. brick-and-mortar retail, but its offline footprint remains tiny (Hayes, 2019). It presently has three bookshops and one convenience store from Amazon Go, while its "click and collect" program is still undergrowth and its 36 pop-up places are more of an experimental stage than a long-term investment. However, in several other nations, Amazon is progressing faster with Omni channel innovations than in the United States.

Figure 1.4 Amazon O2O Program



Source: *(Flora, 2017)*

Furthermore, Inman is a popular fashion industry in China's e-commerce world. Fang Jiang Hua founded of Inman has been deciding to leave the

online-only model, and open 450 physical shops in the smaller towns of China (Yuan, 2018). Inman faced a long-term issue which is in China's e-commerce market become more competitive. For example, Uniqlo, Vero Moda and Gap making big online drives. Due to this change, Inman's internet sales increased by around 39%, its newer and smaller offline company grew by 300% to 330 million yuan (US$ 52 million) and achieved 35% of total revenue. Inman is a pioneer in the online-offline trend in China's internet industry. The reason why Inman successful in practising online-to-offline is because they charge online and offline the same prices, and provide all software management services for the shop. Besides, Alibaba Group Holding has offered $2.6 billion for the acquisition of Intime Retail Group. By doing so, they have access throughout the country to 29 Megastores and 17 malls. This investment might allow Alibaba to digitize that physical store. They will also deliver more natural methods of consuming consumers and brands in a complete online offline and offline online experience (Bussat, 2017). According to Jack Ma said they anticipate the emergence of a re-imagined retail industry driven by internet, offline, logistics and information inclusion across a single value chain in the coming years. With e-commerce quickly becoming a "traditional company", players in pure e-commerce will quickly face enormous difficulties.

The reason why O2O winning in China is because 59% of Chinese shoppers use their mobile phone to verify or compare in-store prices, and distributors understood that by incorporating QR codes into their price tags or by providing free Wi-Fi access in their shop. They can also follow a two-speed Channel challenge, with the online shopping experience offline beginning to take on an extra function as a complement (Bussat, 2017). While customers in Western nations still lack mobile usage during shopping with only 45% of all shopping involves phone usage, the last Facebook research claims. It also demonstrates that 71% are not satisfied with the transaction experience yet, this could be an entry point for O2O improvement.

1.1.2 Trends of O2O in Malaysia

According to Digital News Asia, South East Asian internet payment gateway provider iPay88 Sdn Bhd said it expects mobile trading to grow three times quicker than the general e-commerce industry in Malaysia based on transactions reported on its platform. In Malaysia, there have about 70% internet transactions on its corporation platform (Filimonova, 2018). Today, more than 26 million Malaysian are using internet and GlobalWebIndex data shows that 80% of people between the ages of 16 and 64 are already shopping online (Kemp & Moey, 2019). Among of the Southeast-Asia countries, Malaysia has spent significantly more on online shopping, but the country's average e-commerce revenue per consumer (ARPU) is still barely a quarter of the global average. Moreover, Malaysians' e-commerce consumption increased by 24% last year, and with the country's government making online economy development a national priority, Malaysia is likely to continue to experience strong growth in online shopping in the years ahead (Kemp & Moey, 2019).

In 2018, Malaysians invested over US$ 6 billion digitally, with consumer goods sales even outweighing travelling spending. However, the average Malaysian e-commerce shopper spent only $159 on online shopping of consumption goods in 2018 which significantly lower than the global average of $634.

Figure 1.5 E-commerce Activities in Malaysia

Source: (Kemp & Moey, 2019)

Besides, Grab and Uber as the new online business model which leverage mobile booking and transactions, are also expected to drive m-commerce volumes (Filimonova, 2018)." Thus, a study on mobile internet shopping last year ranked Malaysia third in Asia's mobile shopping development from 25.4% in 2012 to 45.6% in 2014. Many famous global online stores including Amazon, Apple, Walmart and Google Play have seen a growing number of consumers buying on their mobile ("The rise of mCommerce in Malaysia", 2016). According to the Minister of International Trade and Industry, Darrell Leiking, e-commerce has a great impact in 2018, because it increases the 2017 gross national product (GDP) to RM86.5 billion, with annual growth of 12.5 per cent (iPrice Group, 2018).

Furthermore, the first online-to-offline grocery sale in Malaysia, organized by Fave mobile payment platform and Potboy local online retailer (Malay Mail, 2018). According to co-founder Eddie Chew, PB Grocery Group Sdn Bhd said the event allows offline clients to buy stuff online without being

physically present at the event's real exhibition hall. As an alternative shopping method, they want to educate customers about cashless transactions and e-payment, and at the same time give them the convenience of shopping. Therefore, all payments must be produced via Fave and no other payment technique will be accepted for sale.

Figure 1.6 Experience Malaysia 1st Online to Offline Grocery Sales

Source: *(Anand, 2018)*

Next, Taobao has partnered with Atap.co, Malaysia's internet home design platform, to establish the first online- offline Taobao Home Experience Center at Jaya One, Petaling Jaya (The Star Online, 2019). The purpose of this is to narrow the gap between shopping experience online and offline.

At the Experience Center, customers can browse any Jiyoujia products and simply hover their mobile phones to scan for more data the QR codes attached to the products. Consumers can appreciate purchasing stuff at the festival without worrying about carrying the products because they can deliver items free of charge and without a minimum purchase. Following, Boost brings one of the most interesting on-ground experiences Malaysians have ever had. Then you are not even going to have to worry about carrying any money, just shop and pay to get rewarded with Boost. Boost is now making your wish list a reality with its on-ground booth market, where all of your favourites online are now offline accessible (Boost, 2019).

Figure 1.7 Boostopia

Source: *(Boost, 2019)*

Last but not least, the first Taobao 5,000sqf retail store to launch on November 29 in MyTOWN (Yeoh, 2019). Malaysian's Taobao online users will explore offline shopping experience as Alibaba Group said it will soon open a physical store. According to Jess Lew (2019) opening a new Taobao store shows their commitment to local customers and brands as they strive

to localize Malaysian retail products and experiences. According to Fabian Kong (2019), the goal is to approach Malaysian customers of all ages, particularly those who are not familiar with online shopping. Having a physical location ensures that customers can explore and experience a variety of goods before purchasing a product on the Taobao app by scanning a QR code with the aid of their store staff.

Figure 1.8 Image for Illustration

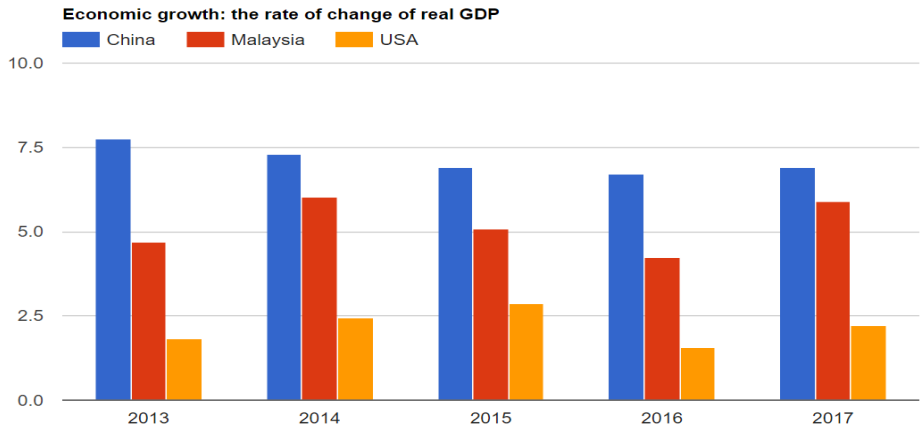
Source: Lim Yaohui/The Straits Times

1.2 Problem Statement

Malaysia is one of the countries in the nation where people's financial status increases slightly compared to other countries such as China and the USA. According to figure 1.9, Malaysia will become the next booming e-commerce country. Malaysia's Government needs the comprehensive articles in this field. Due to, they want have a better understanding of the latest research trend of e-commerce in Malaysia. With regard to the technique, bibliometrics were selected because it enables for a holistic perspective of the studied context of a particular topic; provides important data on subjects, writers, publications, nations and the most productive and influential organizations; and provides information on present trends in the topic and its effect on a given context. Bibliometric studies regarded as a useful starting point for new research on emerging topics.

The e-commerce industry in Malaysia is expected to reach US$ 3.7 billion in 2019 and is expected to hit US$ 5.7 billion in 2023. The e-commerce development of this nation is growing rapidly, and with an estimated cumulative annual growth rate of 11.4%, it ensures that company can still rely on it and even gain the market share in Malaysian e-commerce (Lim, 2019). A different website for e-commerce that has been launched in Malaysia since then will serve a specific niche. It may make sense to list on one e-commerce website, but not another, based on the types of products you offer. For example, listing fashion products instead of Lelong on Zalora and Zilingo may make more sense. Through listing on famous Malaysian marketplaces that suit your goods, you increase the chances of attracting a greater portion of the Malaysian customer base which suits your deals (Lim, 2019).

Figure 1.9 Economic Growth: Real GDP Rate of Change, 2013-2017



Source: *TheGlobalEconomy.com, The World Bank*

Unfortunately, the emerging topic related to e-commerce which is not many studies has been carried out to examine the research trend in this area. According to the opportunities mentioned above, this is a reason why this paper has been carried out.

1.3 Research Objective & Research Questions

1.3.1 General Objective:

Over the past few years, advanced technologies led most of the university have changed their method of research and transformed into a modern university digital resource. So, post-ungraduated students and lecturers can get the appropriate info about latest research field and trends through university digital libraries when they are conducting a research project (Fatima, Abbas, Ming, Zaheer, & Akhtar, 2017). This paper aims to identify the Global e-commerce trends online-offline via bibliometric method published in the online Scopus database. The hallmark of this paper is to identify the latest education research trends of online-to-offline e-commerce towards development in Malaysia and globally.

1.3.2 Specific objective:

RO1: To determine the research trend of scientific publication on O2O e-commerce.

R02: Identifying the pattern of cooperation in co-authorship and research on the subject of O2O e-commerce includes in detail the degree of cooperation and type of cooperation.

RO3: To examine the output of scientific publication on O2O e-commerce.

1.3.3. Research Questions:

RQ1: What are the Global e-commerce trends and keyword of online-offline for the past ten-year (from 2010 to 2019)?

RQ2: What are the pattern of cooperation in co-authorship and research on the subject of O2O e-commerce includes in detail the degree of cooperation and type of cooperation?

RQ3: What are the most popular for publication on O2O e-commerce in term of journal and citation?

1.4 Significant of study

Consumers in today's era not only have a lot of stores to choose, but they also have a wide range of channels, to choose from such as mobile commerce and e-commerce. With the developing of ICT, there is a rapid rise in channel rivalry. The significant contribution in this paper to use in O2O e-commerce for future scientific. Bibliometric research information that can encourage scientist to produce a more important resume to support their career. It also offers a better perspective for government, researchers and policymakers to describe the value of promoting e-commerce to O2O. This study also offers the public with a basic understanding of what the present e-commerce position is and how it influence the future of the country's economy. Besides, retailers have a better understanding what encourages customers to buy from one channel rather than another, channel design and management is becoming increasingly important.

1.5 Term of References

Table 1.10 Term of Definition

Term	Definition
E-commerce	Commercial transactions conducted online.
Online-to-offline (O2O)	Online-to-offline (O2O) e-commerce is a business strategy designed to bring online customers to brick and mortar locations as well as create a seamless digital experience before, during, and after.
Co-author	one of two or more people who write a book, article, report, etc. together
Citation	A citation is a link to the information source used in the analysis.

Source: Developed for the research

1.6 Organisation of the Report

In this research, there are five chapters that are interrelated in each section. Below is a brief description of each section:

Chapter 1:

Chapter one's primary aim is to review the study topic and general idea. Subtopics such as research background, goals (general goals and particular goals) and issues, study hypothesis and meaning, definition of terms and chapter design are included in this section.

Chapter 2:

Journals and articles support the definition and ideas of dependent variables and independent variables. In addition, numerous research studies have included previous research to support the option of producing the dependent, independent and mediating variable. The journal and articles also promote the creation of hypotheses.

Chapter 3:

This chapter explains and describes how this research will generate techniques and processes. Chapter three comprises of several parts such as techniques for collecting information, designing research and sampling, study tools, measuring constructs, processing information and analyzing information.

Chapter 4:

In chapter four, the information gathered from target participants were evaluated and interpreted. Charts, numbers and even tables are used in this section to interpret and clarify the information. In addition, to clarify the data, descriptive, reliable and inferential assessment will be manipulated.

Chapter 5:

It explains and discusses the outcomes of the outcome from chapter four in this last chapter. It also concludes the whole study in this section, which also includes limitation and study involvement, significant conclusions, and recommendations for future studies.

1.6 Conclusion

In this chapter can understanding the research background of global online to offline (O2O) e-commerce. The reason why the company should expand their business to Malaysia and what are the opportunities have provided in Malaysia. Furthermore, does Malaysia have any company are implementing O2O strategy? The current study can provide basic insight into the e-commerce market in Malaysia and globally.

CHAPTER 2: LITERATURE REVIEW

2.0 Introduction

This chapter provides the conceptual framework supporting the research methodology's bibliometric evaluation. This framework introduces e-commerce conceptualization, provides some growth milestones, and emphasizes its significance in enhancing supplier-customer relationships in today's organisations.

2.1 E-commerce

E-commerce is an interaction between communication systems, data management systems and safety, which will exchange business information regarded to sale goods or services. So, primary elements of digital commerce are communication systems, data management systems and safety (REED, 1959). Besides, e-commerce also can be defined as the process of companies trading with other companies and the development of inner processes using electronic connections (Ohene-Djan, 2008). Furthermore, e-business refers to a wider explanation of e-commerce not solely purchasing, selling products and services, which also serving clients, collaborating with company partners, e-learning and electronic transactions (E-Commerce and E-Business, n.d.). E-commerce creates new opportunities for online profitability and promotes easier intergroup collaboration. For instances, companies sharing data to enhance client's relationships; corporations working together to design and construct new products/services; multinationals sharing info for a major marketing project (3.1 INTRODUCTİON TO E-COMMERCE, n.d.). Now, we can purchase the common products and services on online such as airline and travel

tickets, banking services, books, clothing, computer hardware, software, and other electronics, flowers, and donations (3.1 INTRODUCTİON TO E-COMMERCE, n.d.). Initially, the major recipients of e-commerce are marketing, distributors, banks, insurance government, training, internet publication, travel companies (3.1 INTRODUCTİON TO E-COMMERCE, n.d.). For example, the travel and tourism industry joining the internet platform increasingly to tap into the e-commerce market's splurging clients (CedCommerce, 2017).

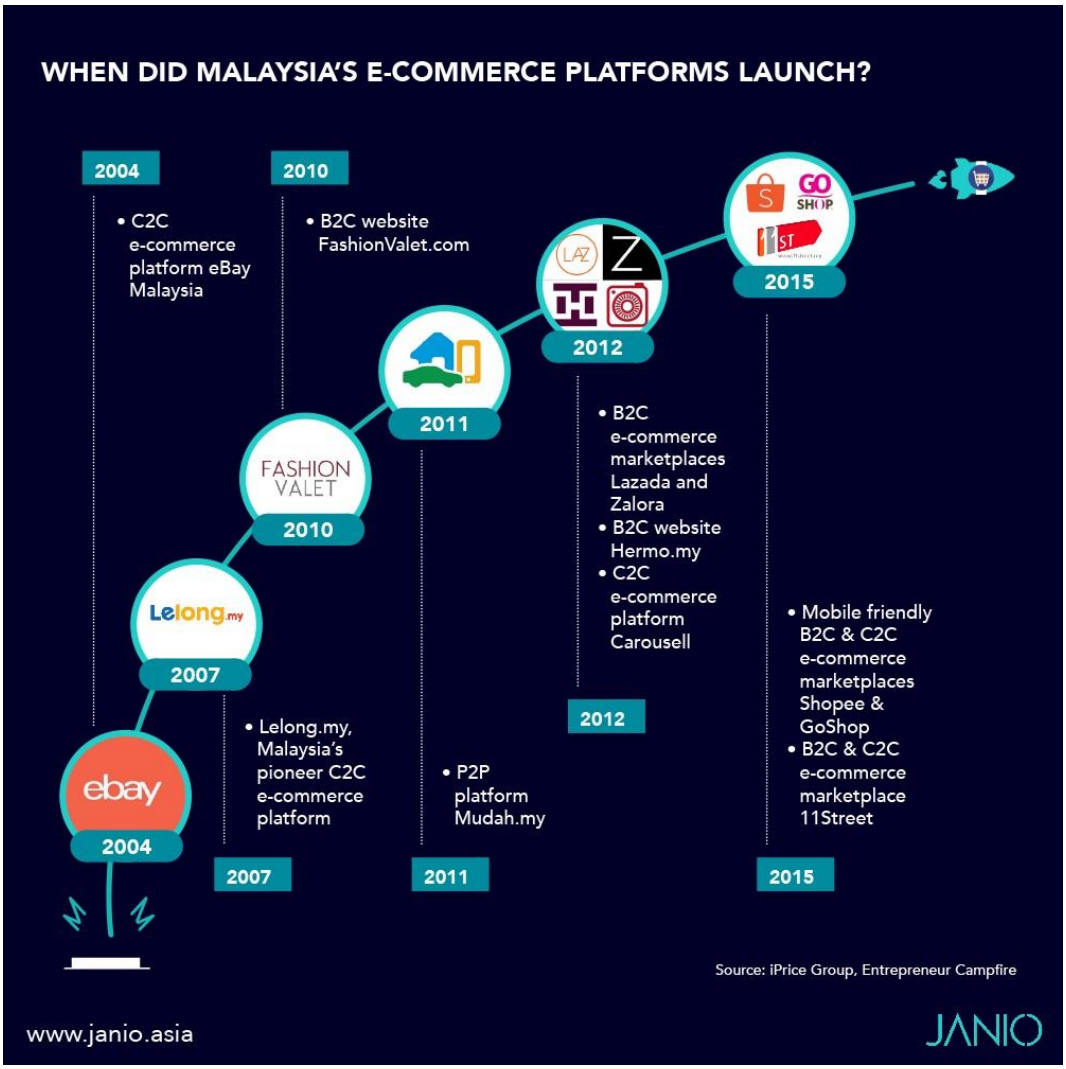
2.1.1. E-commerce Growth in Malaysia

In 2007, Malaysia already had a C2C platform such as eBay and Lelong to connect consumers in an online environment to interact with each other. For those who are unfamiliar with transaction gateway may use cash on delivery method, so buyers and sellers can meet face-to-face to inspect goods and accept payments instead of entering their banking information (Chew, 2018). Also, C2C platform has stimulate the use of transaction gateways and other modes of online payment. Through offering Malaysian exposure to products sold overseas, eBay made it mandatory for consumers to sign up with PayPal. It promoted the use of the country's online bank transfer, credit and debit cards (Chew, 2018). Vivy Yusof and her partner, Fadza Anwar, founded FashionValet.com in 2010, and Mudah.my peer-to-peer (P2P) site followed in 2011 (Lim, 2019).

In 2012, there have open the new e-commerce platform such as Lazada and Zalora which introduced the concept of B2C online marketplaces in Malaysia, opening new doors to budding e-commerce merchants. Instead of selling items individually on these platforms, merchants can now operate like a retail store. E-commerce websites in Malaysia currently enjoy a total

of over 50 million monthly page visits, and platforms such as Lazada and Shopee tend to top the charts of monthly e-commerce internet visits.

Figure 2.0 when the e-commerce platform was introduced in Malaysia

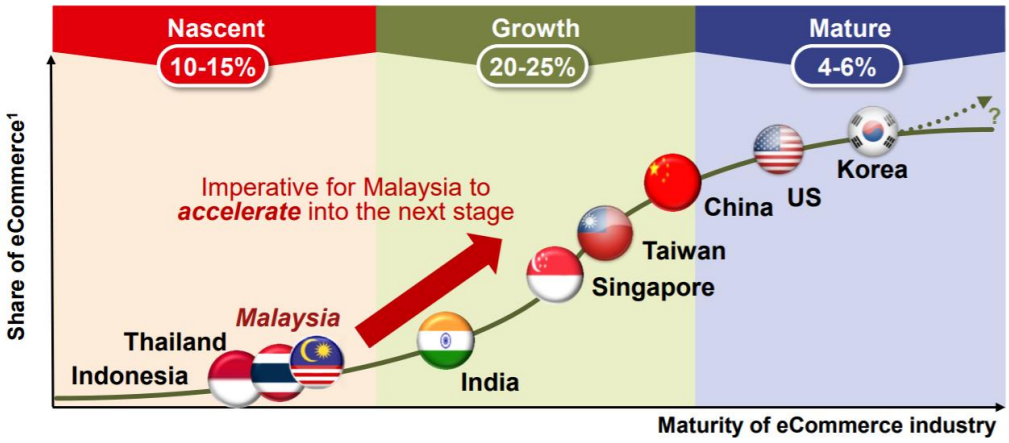


Source: (Lim, 2019)

Due to O2O is the importance of upcoming e-commerce researchers topic in China and globally. Malaysian e-commerce is expected to rise at CAGR 11% ("Additional government interventions will drive higher GDP contribution Critical Success Factors Ready infrastructure and ecosystem Specific government interventions Favorable demographic & economic trends eCommerce GDP contribution (RM billion) National eCommerce

Strategic Roadmap Overview", 2016). Nevertheless, this increase is expected to double. Malaysian e-commerce is now at a turning point with focused interventions, growth can be accelerated.

Figure 2.1 Evolution Curve of E-commerce



Source: "Additional government interventions will drive higher GDP contribution Critical Success Factors Ready infrastructure and ecosystem Specific government interventions Favorable demographic & economic trends eCommerce GDP contribution (RM billion) National eCommerce Strategic Roadmap Overview", 2016

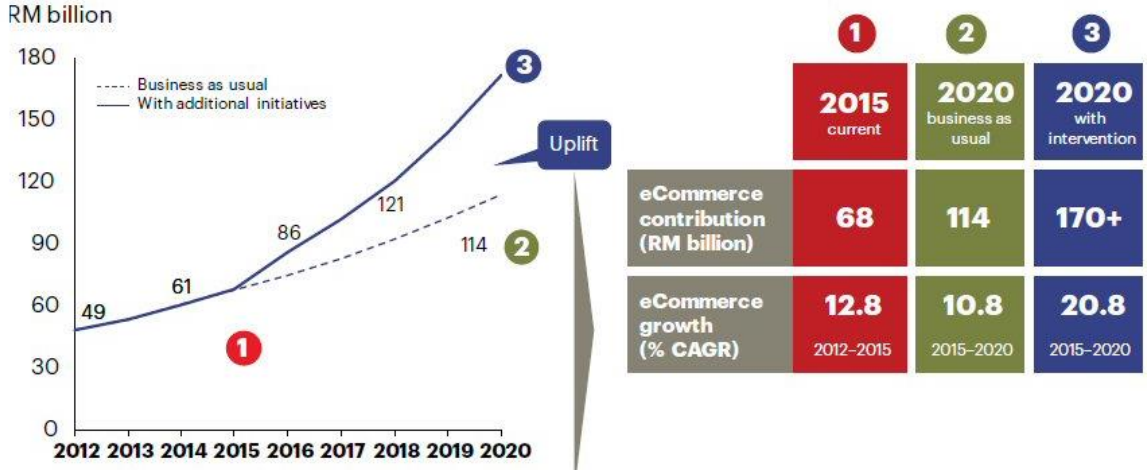
There have six supportive government framework in order to accelerate the growth of e-commerce ("Additional government interventions will drive higher GDP contribution Critical Success Factors Ready infrastructure and ecosystem Specific government interventions Favorable demographic & economic trends eCommerce GDP contribution (RM billion) National eCommerce Strategic Roadmap Overview", 2016).

1. Accelerate the adoption of e-commerce by sellers
2. Increase the adoption by companies of e-procurement
3. The removal of non-tariff barriers
    a. Domestic e-fulfillment
    b. E-commerce across boundaries
    c. E-payment
    d. Customer protection
4. Realign current economic incentive
5. Invest strategically in select e-commerce players
6. Promote the national brand to boost e-commerce across borders

These are a reason why Malaysian should put more focus on this topic and understand the trends of e-commerce in Malaysia.

E-commerce will be blooming in Malaysia is clearly illustrated by Transport Minister, Datuk Seri Liow Tiong Lai said: "The evolution of the e-commerce industry will make Malaysia a top logistics hub in ASEAN, placing it on the worldwide logistics map". The reason is that since, founded the National eCommerce Council (NeCC) which improve the competitiveness of the e-commerce ecosystem, more than 120000 online corporations registered (Bernama, 2018). As Wee Huay Neo director of the Malaysia Digital Economy Company , mentioned Malaysia's web penetration is 67%, while e-commerce contributes 5.8% to the gross national product of the country, just 0.6% below the 2020 goal.

Figure 2.2 E-commerce sales growth in Malaysia could double by 2020



Source: *(Filimonova, 2018)*

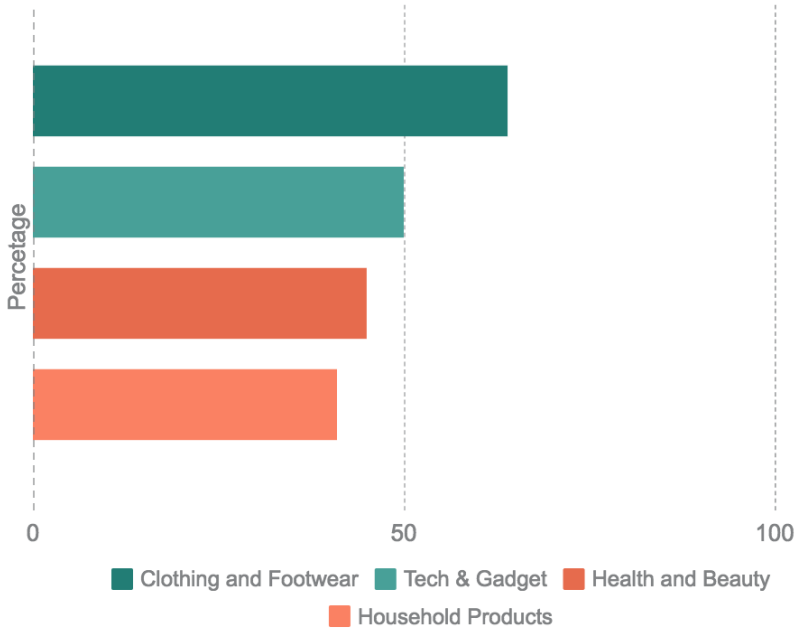
Various e-commerce statistics are looking by Malaysian online shoppers (Filimonova, 2018):

1. Fashion & beauty products, electronics, and sports goods are the most common kinds of goods bought by Malaysians online
2. 80% Shoppers use their smartphones to buy online
3. When shopping online, the primary factor in Malaysia is the price
4. Nowadays, males tend to go shopping more than females
5. 59% of Malaysians shop online at least once per month
6. 95% of the population of Malaysia is satisfied with their online shopping experience

According to Aditya in 2017, they discovered that within July 90% of participants responded with a rate of 56% to their latest online purchases, while 34% had a purchase between 1 and 3 months ago. This validates the rise in Malaysia's online purchasing scene. More than 70% shop online at least once in terms of frequency, which demonstrates a rise in online

shopping behavior in Malaysia from last year. Here is the list of categories of products purchased online by participants:

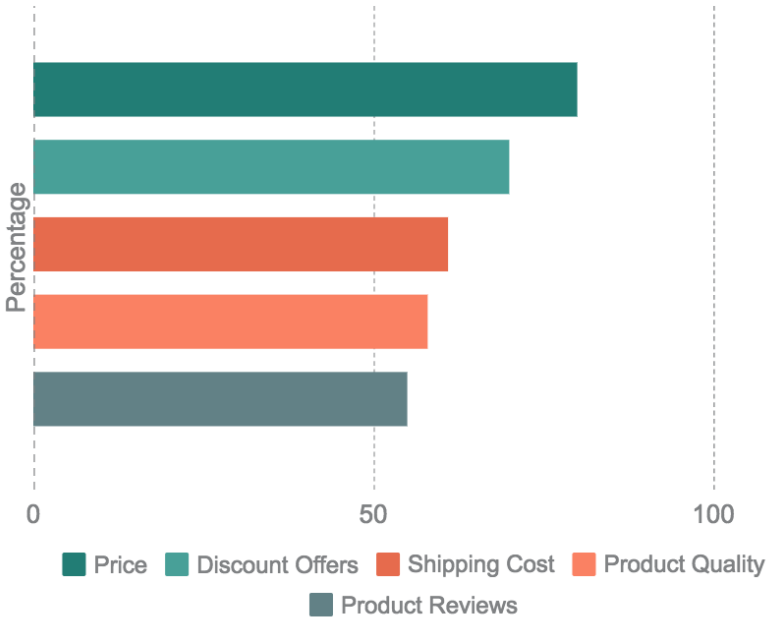
Figure 2.3 Top 4 Product Categories Malaysians Shop Online



Source: *(Aditya, 2017)*

Next, Malaysian tend to look at internet information at the consideration level to persuade themselves to buy something, whether offline or online. Product reviews (70%), product comparison with other options (57%) and product start updates (39%) were also discovered to be the sort of internet data they are looking for. The major important factor that influence Malaysian to shop online is pricing.

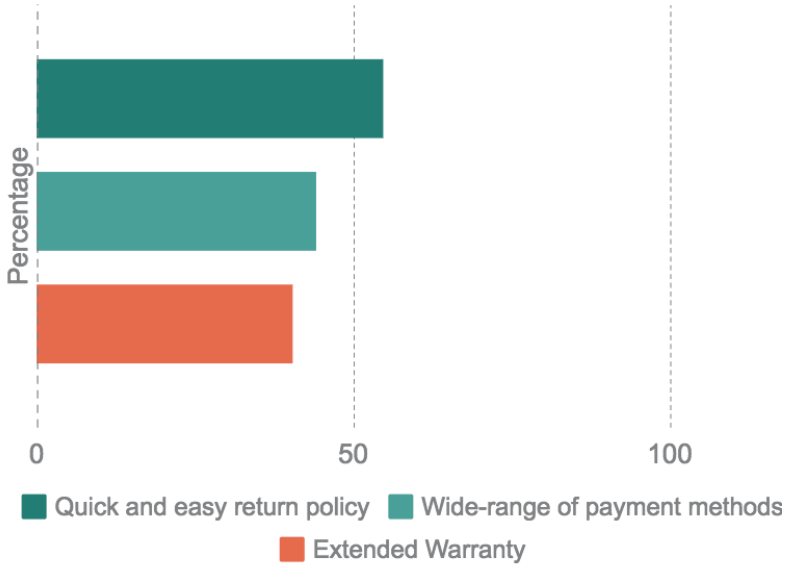
Figure 2.4 which factors are important when determining which store to shop online?



Source: *(Aditya, 2017)*

Also, factors influencing Malaysian online shopping decision is quick and easy return policy. Following by, wide range of payment method and extended warranty.

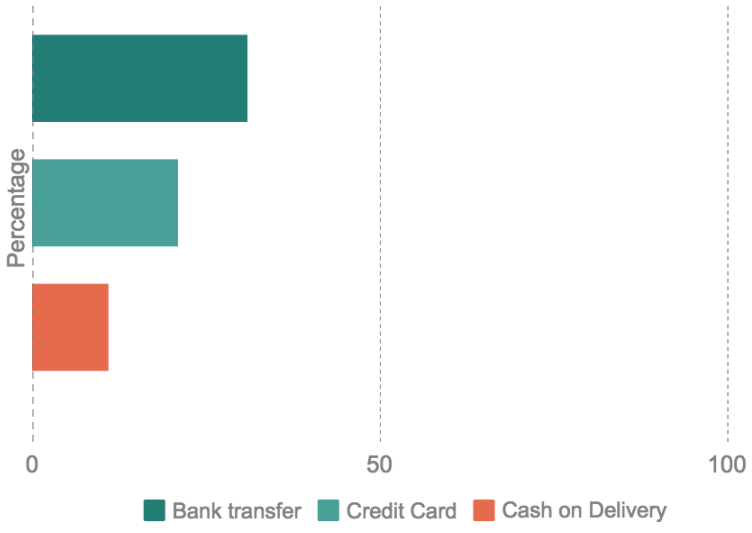
Figure 2.5 Which Factor Below Would Influence Decision-Making in Shopping Online for a Product



Source: *(Aditya, 2017)*

Then, the technique of payment Malaysian preferred is bank transfer. Following by, credit card and cash on delivery.

Figure 2.6 Preferred Payment Method When Shopping Online

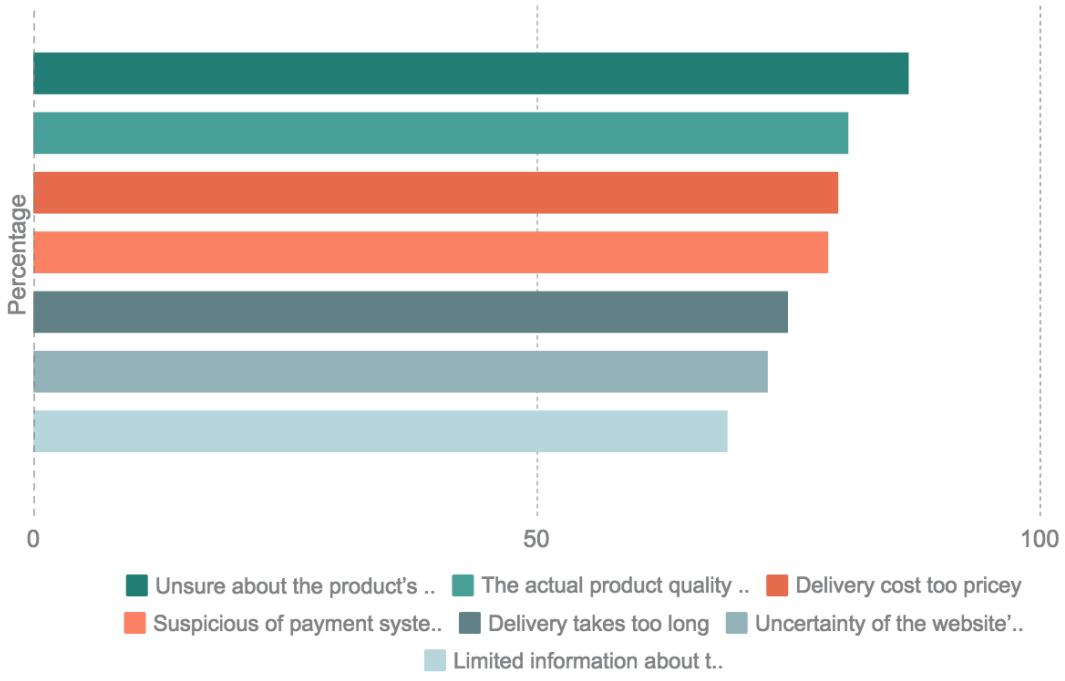


Source: *(Aditya, 2017)*

A number of things that may be of concern to Malaysian consumers when shopping online. Below are some interesting findings about the pain of consumers when shopping online:

1. Uncertain about the authenticity of the product (87%)
2. The actual quality of the product is not as promised (81%)
3. Sometimes delivery costs too much (80%)
4. Security of payment scheme dubious (79%)
5. It takes too long to deliver (75%)
6. Uncertainty about the authenticity of the website (73%)
7. Limited product details on the website (69%)

Figure 2.7 Consumers Pain Points in Online Shopping



Source: *(Aditya, 2017)*

Recently, Lazada Malaysia has been selected for the upcoming KL Fashion Week (KLFW) as the official e-commerce partner and will host 10 home-grown designers on their platform ("KL Fashion Week e-commerce partner", 2019). The shows on the Lazada app will also be live streamed. Using a

notion of ' see now, purchase now, ' audiences can add products to the cart while watching the shows without leaving the live stream. When he first brought his label offline online, designer Jimmy Lim said, "This year, the Jimmy Lim label celebrated its 20th anniversary. So far we have seen the evolution from offline to online in consumerism. With innovation and technology, new and larger markets such as Lazada are leading the online shopping movement ("KL Fashion Week e-commerce partner", 2019).

Figure 2.8 KL Fashion Week E-commerce partner

Source: *movement ("KL Fashion Week e-commerce partner", 2019)*

2.2 Traditional commerce vs E-commerce

Traditional trade is a process of selling goods and services within a single sector or a particular geographic region. It depends on running business hours over a particular period, involves residential inventory or retail store occupancy and communicates with customers by face to face. Traditional commerce success is based on word of mouth, networking and consumer referrals for new and repeat business (Gupta, Bindal, Agarwal, & Kumar, 2018). There are two types of activities in commerce, which is trade and auxiliaries to trade. Trade term as to the purchase and sale of products and services for money and trade auxiliaries to help in the effective completion of exchanges between parties such as banking, insurance, transportation, advertisement, insurance, packaging, and so on (Surbhi S, 2018). In short, commerce as intermediaries to exchange of products and services from manufacturer to the final consumer. Due to it does not reach the consumer directly when the products are manufactured. Its primary role is to satisfy customers' needs by providing them with products at the right time and place (Surbhi S, 2018).

Table 2.9 Comparison between traditional commerce vs e-commerce

Basic for comparison	Traditional commerce	E-commerce
Meaning	It is a traditional approach for buying in-person products and services that includes dealing face to face	It conducts trading or exchanging data on the internet electronically
Usage	It is old and still in use where it is impossible to access the digital network	It's used to save precious time and money
Process	Anyone can follow it regardless of education or expertise	If the client has a fundamental knowledge of digital gadgets, it is simpler to use and function
Mode	It can be in any non-electronic or manual form	It is only available in electronic or digital mode
Accessibility	Limited Time	Unlimited time
Physical inspection	Before buying, goods can be physically inspected	Before buying, goods cannot be physically inspected
Customer interaction	Screen-to-face	Face-to-face
Business	In this model, more business is difficult to do	More business can easily be done without any problems
Maintenance	It is cost-effective because products need to be displayed and displayed to attract clients	It is easier to keep this as the only warehouse is sufficient to store the products.

Source: (E-commerce vs traditional commerce: Learn The 9 Important Differences, 2019)

In brief, e-commerce is the trendy type of company that most company traders or retail and wholesale vendors carry nowadays. Traditional trade is still popular where goods and services cannot be delivered to remote locations in urban regions. Both e-commerce versus traditional business models is still popular based on the customers' availability, requirement and emergence of the requirement (E-commerce vs traditional commerce: Learn The 9 Important Differences, 2019).

2.3 Business-to-Business (B2B)

B2B business model carries out the electronic transactions among and between companies. A possible explanation that Business-to-Business involves internet wholesale where companies sell materials, goods and services on the websites to other companies (Samantaray Mihir Ranjan Nayak, Madhab Mahapatra Susanta Moharana, & Kar Sharma, n.d.). For instance, Amazon, Paytm, and Shopclues is recreating the B2B platforms click-to-buy model for their vendors (Samantaray Mihir Ranjan Nayaket al., n.d.). In this model, pricing can be negotiable due to the integration of business systems to obtain lower prices on your supplies and with minimal human intervention (Nagaty, 2010). B2B not solely conduct a commercial transaction via online but also make it in real-time transactions with other companies to enhance their efficiency and productivity (Nagaty, 2010). Approximately 80% of e-commerce is of this kind, and most experts predict that B2B e-commerce will continue to grow rapidly than the B2C segment (Different types of E-commerce, n.d.). Wal-Mart Stores is one of the examples whose successful practice B2B model. The purpose of this is to observe cost saving by enhancing velocity, decreasing mistakes, and eliminating activities (3.1 INTRODUCTİON TO E-COMMERCE, n.d.). Major vendors from Wal-Mart (e.g., Proctor & Gamble, Johnson and Johnson, and others) sell electronically to Wal-Mart Stores; all paperwork is processed electronically (3.1 INTRODUCTİON TO E-COMMERCE, n.d.).

The advantage of B2B commerce has market predictability and stability (Kokemuller, 2019). B2B industries tend to develop more steadily as consumer sentiment ebbs and flows rapidly. Once a secure relationship with buyers, seller ability to supply them may last for at least a year or longer. Both parties have to sign a contract to ensure pricing and conditions. Then, the seller can plan an accurate revenue budget through this contract. Other advantage of B2B commerce is more customer loyalty (Kokemuller, 2019). It is typical to have a continuing commitment after the company establish a relationship with a consumer and prove their reliability as a supplier. B2B purchasers are not as luxurious as customers. Due

to major changes, in product or service providers are costly and time-consuming for company buyers. Companies and their clients depend on product quality, service reliability and value consistency.

The smaller customer pool is one of the disadvantages of the B2B commerce (Kokemuller, 2019). Due to in the B2B market, the number of potential purchasers is much smaller than in a typical consumer market. If you produce niche goods or deliver specific services to a narrow sector, you can only have 10 to 20 clients in a specified geographic region. However, if your products or services are more attractive to consumers but the customer pool is diminishing as many have developed supplier networks. The second disadvantage of B2B is marketing challenges (Kokemuller, 2019). The major challenge faced by B2B corporations is B2C peers. To attract internet consumers, B2B companies depend strongly on content marketing and social media. B2Cs use social media to involve customers. It's more complex how you interact with B2B users online and on social media. Thus, B2B suppliers must plan closely and invest in quality employees or external organizations to profit from these digital instruments.

2.4 Business-to-Customer (B2C)

B2C exist between companies and customers, includes clients collecting data; buying physical goods (i.e. tangible goods such as books or consumer goods) or data goods, digital goods or digitized content, such as software or e-books and data goods, receiving products through an electronic network (Different types of E-commerce, n.d.). B2C companies played a significant part in the growth of e-commerce, where clients received big discounts on shopping and free internet services. Moreover, companies published their products on the market quicker with minimum expenses and adapted faster to consumer needs and want. Unfortunately, many spectators argue that this model once flourished and is now often seen as undeveloped, less frequent and will not flourish anymore (Nagaty, 2010). However, some analysts predict that B2C will continue to thrive and develop, but not just as simple and popular as initially anticipated (Nagaty, 2010).

One of the examples of B2C e-commerce is Amazon. Amazon making it as a leader in the B2C model where it's splitting its activities into cloud computing and storage services and paid content categories (app store and digital media) (Miller, 2018). Besides, McDonald's is one instance of a traditional B2C model. Their products only available at physical locations for customers, i.e. customers can't purchase their meals online (Cruz, 2019). The reasons why companies use this e-commerce model is because it saves companies from factoring in a physical distribution network's additional costs and also decrease their transaction costs by enhancing customer access to info and enabling customers to discover the most competitive price for goods and services (Different types of E-commerce, n.d.). Furthermore, B2C e-commerce decreases market entry barriers since it is much cheaper to set up and maintain a website than building a "brick-and-mortar" framework for a company (Samantaray Mihir Ranjan Nayak, Madhab Mahapatra Susanta Moharana, & Kar Sharma, n.d.).

One of the advantages of B2C commerce is catalogue flexibility (Business Education, 2018). The company using online catalogue to reach potential customers with full information and pictures that already posted on the website. The company can adapt e-catalogue whenever possible such as adding new goods and revise the prices accordingly. It consumes less time than traditional print catalogues. The second advantage is unlimited market place (Business Education, 2018). Consumers can buy goods and services without time and place restricted. This means that the internet broke global obstacles and gave consumers the chance to store different products and facilities without having to be in individual at the stores. The third advantage is minimize the competition gap (Business Education, 2018). B2C able to minimize marketing and advertising costs that allow the company to compete with high-profile businesses in terms of cost, quality and product accessibility. The last but not least advantage is lower business operation costs (Business Education, 2018). B2C allow the company to decrease its elements such as staff, purchase costs, mailing confirmations, telephone calls, data entry, and the need to open physically existing shops. Then, the transaction costs for the clients were affected and decreased.

One of the disadvantages of B2C is catalogue inflexibility (Business Education, 2018). When the company adding new info and products, it is essential to reorganize the catalogue. The second disadvantage is infrastructure (Business Education, 2018). Although the company offers a huge reach of customers and breaks global obstacles, the fact keeps unchanged. According to studies, a total of 26 million individuals worldwide are disallowed access to an internet connection and this problem has to take time to settle. The third disadvantage is competition (Business Education, 2018). The competition is serious as millions of online brands and services exist. This is because some businesses have maintained a large market share that allows them to survive in the long run. Therefore, the company must have a better marketing and IT knowledge to introduce new product on online. Last but not least disadvantage is limited product exposure (Business Education, 2018).

E-commerce has limited the exposure of purchasers to products on the Internet. Due to most websites at the moment of buying the item would not allow clients to go beyond the glamorous product pictures and descriptions. This is a reason why some goods spoil consumers when delivered and are immediately returned to the companies.

Table 2.10 Comparison between B2B vs B2C

Comparison	B2B	B2C
Customer	Company and business	Consumer
Focus on	Relationship	Product
Quantity of merchandise	Large	Small
Relationship	Supplier - Manufacturer Manufacturer - Wholesaler Wholesaler - Retailer	Retailer - Consumer
Buying and selling cycle	Lengthy	Short
Buying decision	Planned and logical, based on requirements	Emotional, based on desire and want
Creation of brand value	Confidence and mutuality	Advertisement and promotion

Source: (Surbhi S, 2018)

2.5 Customer-to-business (C2B)

C2B e-commerce means a consumer selling the goods and services to a company. It is opposed to the B2C/Business-to-Consumer idea where businesses create products and services accessible to end customers (Samantaray Mihir Ranjan Nayak et al., n.d.). Consumers have an authority to set the prices for specific goods and services. C2B allows clients to pay online from anywhere without having to go to the shop for their bills (Nagaty, 2010). Examples of this kind of e-commerce model www.fotolia.com where photographers and designers are offering their works for a business sale. Other examples of the C2B model are online advertising sites such as Google Adsense, internet surveys such as www.surveyscout.com where people provide the service to respond to the survey of the company and businesses pay people for this service (Nagaty, 2010).

2.6 Customer-to-customer (C2C)

C2C means consumers sell online and web technologies directly to other consumers. This kind of e-commerce is characterized by e-markets growth and online auctions, especially in vertical sectors where companies/businesses can bid among various providers for what they want (Different types of E commerce, n.d.). An example of this model is auction websites such as eBay where customers can easily purchase and sell online payment systems such as PayPal to send and receive money online (Nagaty, 2010).

Table 2.11 Advantages and disadvantages of customer-to-customer

	Advantages	Disadvantages
External Environment	The fast rhythm of life makes individuals increasingly need a concise way to shop quickly. Also, payment for electronic commerce, logistics, authentication, standard, credit, further improvement of this support environment.	There do not state out clearly about the laws of internet shopping. It goes against C2C e-business growth.
C2C Industry	The macro-environment of c2c e-commerce is steadily improving, the business scale and the e-commerce industrial chain, are continuously improving.	The C2C e-business industry has three significant bottlenecks, which are credit, payment and distribution.
Operator	The third-party e-commerce platform makes a person online save the start-up capital lot compared to the entity store.	The online business model requires entrepreneurs to have fundamental computer skills, marketing knowledge, legal sense and entrepreneurship.
Consumer	Convenient time	Many customers are still using the traditional shopping method. Due to there is concern about browsing and searching on the Internet about commodity data, using instant messaging instruments and vendor communication, paying through the network.

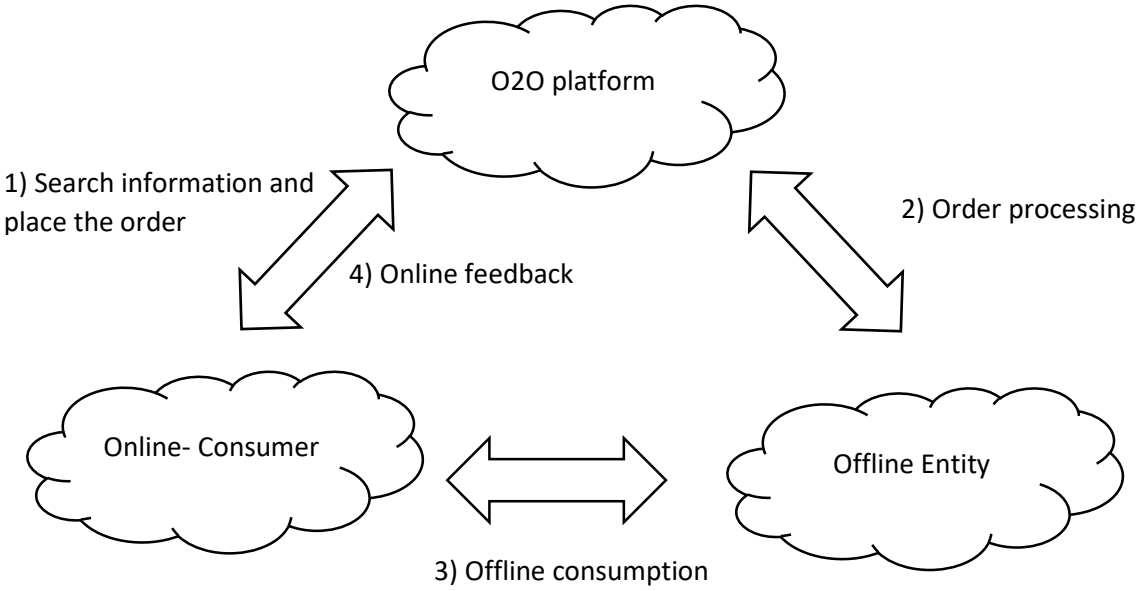
Source: (Xu, 2011)

2.7 Online-to-offline (O2O)

Online-to-offline (O2O) is a new e-commerce model which emerged with the development of electronic commerce. According to Alex Rampell, TrialPay's chief executive and founder say the key to O2O marketing is to find and bring customers online in real-world shops (Contributor, 2010). It is a mixture of payment model and foot traffic generator for merchants (along with a consumer "discovery" mechanism) that generates purchases offline. One of the reasons why O2O has emerges is because in online marketing, consumers cannot receive a real experience and in offline marketing, consumers unable to get first-hand information and promotion. O2O is focusing on consumer involvement and physical experience.

This model connects the opportunities of offline business with the Internet, making the Internet the front counter of offline business. Offline services can attract online customers and online services can also be screened by customers (Du, 2014). The O2O e-commerce mode operating flow is shown in Figure 2.12. This paper focuses on the operation flow's third method: offline consumption. O2O platforms contact offline retailers (e.g. restaurants, spas and hotels) and put their data online, including place, product/service details, time of operation and discount data. To browse the data of dealers, customers access the O2O systems via their PC, mobile or tablet (Xiao, Mi, Zhang, & Ma, 2017). They go to the physical stores of the merchants to enjoy the services/products and pay online via the O2O platform if they are interested.

Figure 2.12 Operation Flow of O2O e-Commerce Mode



Offline consumption is a significant O2O mode segment. If the customer is unable to get the anticipated service in the offline entity store, then the mode is unsuccessful because it can affect the confidence of the O2O platform clients, they can even raise doubts on the entire O2O mode (Du, 2014). Thus, improving offline service quality plays a very significant role in maintaining customer loyalty and lifting customer loyalty to O2O platform.

Advantage of O2O mode is remaining competitive (Jackson, 2016). Due to consumers having to change their purchasing behaviour towards every aspect of any retail brand, companies cannot afford not to implement an Omni-channel strategy. According to Lithium Technologies, consumers who expect to get an answer within an hour when they ask a brand a question on social media have 53%. Therefore, the brand want to retain loyal customers they have to implement a variety of platforms and provide unrivalled customer service. Another advantage is the product more accessible to the customer (Jackson, 2016). There have 54% of Omni-channel buyers are more likely to shop with a store that makes it easy to purchase on multiple devices, according to Facebook IQ.

One of the disadvantages of O2O mode is difficult to operate due to it is not as simple as the usual marketing strategy (Jackson, 2016). The approach is systematic and takes into account all channels in order to deliver a smooth customer experience regardless of platform or network. Before a company start to build a plan, they must understand what consumer needs and wants to get this strategy off the ground. Another disadvantage is required open communication (Jackson, 2016). Forrester Consulting's research found that conflicting priorities and organizational silos remained a key retailer challenge. Due to, Omni-channel marketing requires all of the employees to cooperate, from the marketing department to the customer service teams and shop floor assistants. To make the strategy success, everybody needs to be on board and work towards the same target.

2.8 Bibliometric

Bibliometric known as Scientometrics is a technique used to analyse quantitative of scientific and statistical (Thomson-Reuters, 2008). Through quantitative studies, we have a greater understanding of the phenomena of scientific and technical knowledge construction, dissemination and use (Introduction to bibliometric, n.d.). Furthermore, bibliometric also provided other kinds of data such as science cooperation, mobility, interdisciplinarity, sexuality and publication of open access (Waltman Ed Noyons, 2018).

In addition, the bibliometric strategy is based primarily on the study for the quantitative features of the topic studied: features of study publications, such as article titles, keywords and sentences; authors, including their organizational affiliation, co-authors and reputation; and books and journals, including titles, subjects and countries of origin, enabling patterns of study advancement and scientific development to be identified (Villa, Ruiz, Valencia, & Picón, 2018). The goal of bibliometric studies was to assess domestic study achievement in the global context or to use bibliometric means to define the growth of the science sector. (Braun, Erńó, & Schubert, 2019). Besides, bibliometric frequently used in research management and research evaluation (Waltman Ed Noyons, 2018).

Today, bibliometric increased use by many countries, and groups to publish bibliometric report also called science indicators studies. The groups included the National Science Foundation (United States); the European Commission; France's L'Observatoire des Sciences et des Techniques (OST); and Japan's National Institute for Informatics (NII), National Institute for Science and Technology Policy (NISTEP), and Ministry of Economy, Trade and Industry (METI). Other nations with active bibliometrics groups include Argentina, Australia, Belgium, Brazil, Chile, China, Finland, France, Germany, Israel, Italy, The Netherlands, New

Zealand, Norway, Portugal, South Africa, South Korea, Spain, Sweden, Switzerland, and Taiwan (Thomson-Reuters, 2008).

One of the limitations of the bibliometric technique whereas cannot provide accurate data. Due to this limitation, when the researcher made a significant decision cannot solely base on the bibliometric indicator, which data can be considered as supporting (Waltman Ed Noyons, 2018).

Allan Pritchard is the first person who used the term of bibliometric in his 1969 article "Statistical bibliography or bibliometric," published in the "Journal of Documentation" (Allan Pritchard, 1969). According to Sengupta outlined this term because the "organization, classification and quantitative evolution of publication patterns of all macro and small communications alongside their authorship by mathematical and statistical calculus" (Mathankar, 2018). Therefore, bibliometric studies have been used in publishing in the library and information science at the world level of 25% (Mathankar, 2018).

Some of these practical bibliometrics implementations are as follows:

- The purpose of the bibliometric research is to enhance bibliographic control as bibliometric analysis allows to know the size and character of literature in various fields. The size and development of primary literature directly affects secondary literature's structure. Calculated growth rates and shift directions can thus be of great benefit for secondary network editors in deciding their potential strategy and reporting.
- A major area of bibliometric research is to classify literature statistics relevant to the nation of origin, topic, type, and language distribution of documents and their translations. Such statistics will provide valuable information to determine the scope of work, and may indicate vulnerability in coverage or places of possible secondary network enhancement.

- The subject relationships obtained from the bibliometric analysis indicate beneficial general patterns for secondary network exposure. These studies may also help to establish a business model in a specific subject field.
- Examination of citation information and year-wise publication size can be used in the designing of historical bibliographies, which will provide a measure of both the age of content used in a field and the degree to which more recent articles if any, supersede the older ones.
- Bibliometric analysis helps in the comparative evaluation of secondary services, especially in connection with overall literature size figures and subject links. This can enable authors get an understanding of their successes and competitiveness and may be helpful for marketing purposes.
- Many management decisions are also guided by bibliometric information.
- The citation information further describes the collection of highly cited articles or books that can be used in decision making when discarding the library's inventory.
- Analysis of citations may define subject associations that tend to indicate in a specific library title of publications related to a defined discipline.
- In particular, the bibliometric study provides data on the knowledge system and interaction method. Analysis of literature's scale and development will recognize the changing and diminishing fields of literature over a period of time and literature decline pattern.

2.8.1 Productivity

Productivity is the number of publications can be represented by publishing year, writer and form of publication. With regard to publication consultations per year, the client may compare publications between universities, research centres research groups, scientific fields or research fields (Padrós-Cuxart, Rosa, Riera-Quintero, Clara, & March-Mir, 2016). The estimate is carried out as follows: this counts the number of articles

whose authorship is attributed to the UOC research group, research center or faculty of research groups, research centers or faculties. This counts the number of articles with a writer associated with the subject field for the information fields.

2.8.2 Collaboration

The frequency and importance of scientific collaboration continue to rise. This is because of it able to solve complex scientific issues and foster various political, economic and social goals, such as governance, sustainable development, and awareness and incorporation between cultures (Sonnenwald, 2007). Collaboration enables the degree of co-authoring of publications to be evaluated about the association of writers like institution and country where global, regional, inter-university or collaborative. The individual can compare the collaboration between the authors of the publications between faculties, research centres, research groups, academic or field of study. The calculation is carried out as follows: The percentage of publications from each unit of institution or field of expertise by the degree of cooperation (UOC, regional, international) concerning the total number of publications; which counts the number of articles whose authorship is allocated to the institution of UOC research groups, research centres or faculties and for areas of knowledge, it counts the number of publications connected with the information field by a writer (Padrós-Cuxart et al., 2016).

The individual can access data on the total number of citations obtained at Scopus for publications co-authored with one organization representative (number of citations/number of publications) for cooperation between institutions. The same happens for cooperation between nations, as the

individual may access data on the mean number of quotations obtained at Scopus for articles co-authored with a nation institution (number of quotes/number of publications).

2.8.3 Citation

It makes it possible to evaluate the references provided by the Web of Science, Scopus and Google Scholar report. The individual can consult the number of quotations received by publishing year. Moreover, by way of summary, the individual can see how many articles are listed, the percentage of the cited publications and what is the maximum number of citations earned (results will vary based on the user's query, depending on whether or not the institution has sorted the data) (Padrós-Cuxart et al., 2016).

2.9 Conclusion

In summary, this chapter discussed the concept of the e-commerce trend in Malaysia, the different type of e-commerce and bibliometric analysis. The current study provides comprehensive information on different type of e-commerce concepts such as traditional commerce vs e-commerce, B2B, B2C, C2B, C2C and O2O. For the bibliometric analysis part, it describes the definition, scope of bibliometric and the application of bibliometric.

CHAPTER 3: METHDOLOGY

3.0 Introduction

Chapter 3 discusses methodology for studying the purpose of this research. It will also include research design, sampling design, information collection processes and the suggested instrument for data analysis.

3.1 Research Design

3.1.1 Quantitative Design

Quantitative research is explaining phenomena by gathering numerical data analysed using techniques based on mathematics especially statistics (Education, n.d.). It emphasis is placed on gathering scores that measure individual and organizational characteristics and comparison processes or relate factors about people or groups in experiments, correlation studies and surveys (Wu & Little, 2011). Some methods are used to collect information. These include interviews, questionnaires, or study on experiments (Abdullah & Raman, 2001). A significant characteristic of quantitative research is that the information collection method can combine descriptive and analytical summaries. Quantitative describes a structured connection of cause and effect between the issue and the variables ("What is Quantitative Research?" 2018). Quantitative research techniques that you can use to

obtain information includes questionnaires, interviews, observation and records (Panda, et al., 2018).

3.1.2 Descriptive Research

Descriptive research also referred to as statistical studies, describing phenomena as they occur. It is used to define and acquire data about the characteristics of a specific problem such as society, group or individuals. This sort of study can be said to describe social occurrences, social structure, social circumstances, etc. What did the observer observe and explain? Descriptive research responds to issues such as what, who, where, how and when. Used to study the present scenario. It is commonly used in science of physics and nature (Megel & Heermann, 1993). The purpose of this study is to correctly describe the features of a specific group or situation, a descriptive study of the works in a plant can be undertaken, their distribution of age, their community, their distribution, their level of education, their state of physical health and so on can also be studied in the health and welfare of the plant.

3.2 Data Collection Method

This study obtained information from the Scopus database linked to "online-to-offline e-commerce". As a data pool of this study, all papers, publications, books, review and conference paper are included. All information gathered is restricted to the written English language. Data from 2010 to 2019 are gathered over the previous centuries, which is based on 10 years to demonstrate a larger and clearer image of the O2O e-commerce study trend.

3.2.1 Secondary Data

Secondary data are data collected by a party not related to the study but collected for a different purpose and at different times in the past (Sindhu, 2011). If the investigator utilizes these information, they will be secondary to the present users. These can be accessible in digital, typed or written form. This information can be evaluated to reproduce or extend earlier observed results or address new study questions that were not part of the information analyses initially released (Greenhoot & Dowsett, 2012). Researchers can gather data on a sector, prospective product apps and the market place from a multitude of secondary sources of information. Secondary data are also used to obtain original insight into the issue of studies. Secondary data is categorized either internally or externally in terms of its source. Internal or in-house data is secondary information obtained within the study organisation.

Five secondary quantitative research methods commonly used are as follows (Surendran, 2019):

1. Data available on the Web
2. Sources of government and non-governmental authorities
3. Public libraries
4. Institutions for education
5. Sources of commercial data

3.3 Sampling Design

It is the selection method of the sample to estimate the features of the population. In other words, by examining only a portion of it, it is the method of acquiring data about an entire population (Sajjad Kabir, 2006). The fundamental aim of the sampling is to assess the population parameter and test the hypothesis.

3.3.1 Sampling Units

Elementary units or group of such units which are useful for sampling purposes besides being obviously defined, recognizable and observable. For example, in a family budget inquiry, a family is generally regarded to be the sampling unit because it is found to be useful for sampling and determining the data needed (Sajjad Kabir, 2006). In a crop study, the sampling unit may be regarded as a farm or a group of farms owned or operated by a family.

3.3.2 Scopus

It is possible to acquire bibliometric information through different search engines. In this research, the Scopus database was chosen to search for all published O2O articles. It was justifiable to use Scopus as our information source to obtain abstracts, citations and other bibliometric information as it has broader resources and is constantly more precise than other options such as Web of Science and Google Scholar (Falagas, Pitsouni, Malietzis, & Pappas, 2008)

Figure 3.0 Comparison of Web of Science, Scopus and Google Scholar

	Web of Science (WOS)	Scopus	Google scholar
Subject Focus	Science, Technology, Social Sciences, Arts & Humanities	Science, Technology, Medical, Social Sciences, Arts & Humanities	Medical, Scientific, Technical, Business, Social Sciences, Arts & Humanities
Components	Composed of 3 citation indexes: • Science Citation Index Expanded — to 1900 • Social Sciences Citation Index – to 1956 • Arts & Humanities Citation Index –to 1975 • Conference Proceedings -- to 1990	• Life Sciences • Health Sciences, 800 titles (including 100% coverage of Medline titles) • Physical Sciences > 7,200 titles • Social Sciences > 5,300 titles	• Selections from PubMed, IEEE, American Institute of Physics, proceedings of the National Academy of Sciences, Nature.com, American Medical Association and other medicine journals, Ingenta, SpringerLink,Wiley Interscience, Cambridge journals, Taylor and Francis, Sage Publications, Blackwell-Synergy, OCLC First Search and others • Open access journals and pre-prints • Online dissertations and theses
Coverage	Over 10,000 journals	16,500 journals	Unknown
Time Span	Some journal files going back to 1900	38 million records, of which: • 19 million records include references going back to 1996 (78% include references) • 19 million pre-1996 records go back as far as 1823	Theoretically, whatever is available on the Web
Updating	Weekly	1-2 times a week	Monthly on average
Strengths	• Deeper back-files especially for Science Journals • While controversial, its journal citation reports, impact factors, and h-index are most widely used.	• User friendly search interface • Broader coverage of journals (16,500 versus 10,000 in WOS) • Downloadable reference list	• Provides a more comprehensive picture of scholarly impact as it indexes non-traditional sources not covered by WOS and Scopus • Includes peer-reviewed papers, theses, books, abstracts, and articles from academic publishers, professional societies, preprint repositories, universities, and other scholarly organizations • Better coverage of newer materials than both WOS and Scopus • International and multi-lingual coverage
Weaknesses	• Can lead to low citation counts due to errors in citations provided by authors, and different citation styles used by journals leading to poor indexing	• Citation tracking is limited to the relatively narrow time span of 1996+	• Limited search features • Inflated citation counts due to inclusion of non-scholarly sources such as promotional pages, table of contents pages, course readings lists etc. • Weeding irrelevant hits is time consuming • Difficult to export citations • No way to determine what sources, and time spans are covered. • Limited to what is available on the Web

Source: *("Scholarly Impact and Citation Analysis: What is Citation Analysis?", 2018)*

The reason why in this research choose Scopus as the database is because it has provided a thorough summary of the scientific research output of the world throughout all fields since 2004. And it's only improving. It combines superior quality and Scopus information coverage, sophisticated analytics and advanced technology in one solution (Elsevier, n.d). In addition, UTAR students and stuffs have the authority to access Scopus. There are three important characteristics of Scopus includes analyze outcomes of the search, compare journals by 3 effect metrics and view sub-documents (Wagner, 2015). Compared with other two databases such as Web of Science and Google Scholar, Scopus will update the data and information two times per week. Also, the Scopus main feature is comprehensive coverage of journals. The author can get the latest and comprehensive information in Scopus.

3.4 Data Processing

The study searched for titles and abstracts of research papers on online-to-offline e-commerce to define electronic commerce research subjects. This study chooses Scopus database since it has gained a strong reputation as the leader in the scholarly literature electronic database. The present research includes only documents released between 2010 and 2019. There are 468 total journals, articles, reviews and books on O2O e-commerce available in Scopus. The collected 468 data and the data are collected from a 3-month interval, August 16, 2019 to October 24, 2019.

TITLE-ABS-KEY ("online to offline" OR "O2O" OR "O2O e-commerce" OR "online to offline e-commerce" OR "online-to-offline e-commerce") AND (LIMIT-TO (PUBYEAR , 2019) OR LIMIT-TO (PUBYEAR , 2018) OR LIMIT-TO (PUBYEAR , 2017) OR LIMIT-TO (PUBYEAR , 2016) OR LIMIT-TO (PUBYEAR , 2015) OR LIMIT-TO (PUBYEAR , 2014) OR LIMIT-TO (PUBYEAR , 2013) OR LIMIT-TO (PUBYEAR , 2012) OR LIMIT-TO (PUBYEAR , 2011) OR LIMIT-TO (PUBYEAR , 2010))

This study seeks to investigate the latest growth of studies on electronic commerce through the 468 research papers published in related publications on electronic commerce. While the papers included in the present study were not exhaustive, the present study aims to serve as a thorough basis for understanding the latest trend in studies into e-commerce. This study gathered bibliographic data from all 468 research papers on e-commerce to observe the distribution of years of publishing, authors ' nations, keywords and author patterns.

3.5 Research Instruments/ Data Analysis Tool

Scopus collected document will be recorded directly in Microsoft Excel by dividing various sheets for master record, author, and keyword. In almost all sectors, Excel is a fundamental, popular and commonly used analytical instrument. No matter professional in SAS or Tableau, Excel will still have to be used. Excel becomes essential when the inner information of the customer has to be analysed. It analyses the complicated job of summarizing the information with a preview of pivot tables that help filter the information as required by the client. Excel has the advance business analytics option that helps in modeling capacities that have pre-constructed options such as automatic relationship detection, DAX measurement development, and time grouping (IMS Proschool & Ims, 2017).

Scopus is a source-neutral abstract and citation database curated by specialists on autonomous topics. It places in the hands of scientists, librarians, institutional research directors and funder's strong discovery and analytics instruments. Scopus produces accurate citation search outcomes and automatically updated profiles of researchers and institutions, generating richer people-to-people links, published insights and organisations. In addition to preserving the integrity of the academic record, Scopus supports the efficiency, rank and reputation of institutional research. Find out why more scientists, librarians and organizations are selecting Scopus to promote their strategic study goals includes identify emerging trends, improve visibility, encourage cooperation, financing support and strengthen your organisation (Elsevier, n.d.).

3.6 Data Analysis

3.6.1 Trend Analysis

Trend Analysis is a mathematical methodology which attempts by evaluating historical trends to determine future changes of a given parameter. In other words, it is a methodology that looks at past behaviors to predict future events. Besides, it is used to evaluate linear and nonlinear hypothesized relationships between two quantitative variables. It is generally used in cases where information has been obtained over time or at various parameter levels; in particular when a single independent variable or influence has been modified to analyze the effects on a dependent variable or regression reaction (such as experimental studies) (Lavrakas, 2008). Throughout addition, a dependent variable means is found through environments, rates, or points of the independent variable modified to systematically evaluate the form, shape, or direction of such relationship.

3.6.2 Citation Analysis

Study of citations invokes counting the number of occasions a document is quoted by other works to measure the impact of a writer or publication. Nevertheless, no specific citation search tools are available to compile both articles and their citations. For a thorough analysis of the influence of a writer or a journal, it is necessary to look at all available references to multiple databases ("Measuring Your Impact: Impact Factor, Citation Analysis, and other Metrics: Citation Analysis", 2018). The reason why use citation analysis is to find out how much effect a particular article or writer has had by demonstrating in their own articles which other writers have quoted the research.

3.6.3 Descriptive Analysis

Descriptive statistics involves help to describe, display or summarize data in a meaningful way. In comparison to inferential statistics, descriptive statistics attempt to describe the results but do not attempt to make inferences from the test to the entire population (Narkhede, 2018). Descriptive statistics are used in a concise way to provide quantitative explanations. Descriptive statistics enable everyone to organize large amounts of data. Each statistical description reduces a lot of data to a simpler summary. There are two forms of descriptive statistics. Central trend measurements and variability measurements (spread). Central tendency refers to the idea that the whole set of measures is best summarized by one number, a number that is "core" to the system in some way. Under this have includes mean/ average, mode, and median (Narkhede, 2018). However, spread measurement applies to the data's concept of variance which includes standard deviation, mean deviation /mean absolute deviation, variance, range, and percentile and quartiles (Narkhede, 2018).

Descriptive studies include those which bring out the characteristic feature of such studies in documents or literature.

1. Research for bodies (individuals and document-making institution)
2. Documents containing the information
3. Presentation type
4. Informative nature
5. Quantity of data
6. Studies time and frequency
7. Origin and distribution of geographical dispersion, etc

3.7 Conclusion

In conclusion, this paper is the descriptive, exploratory and explanation research. The data collection is secondary data. The research instrument or data analysis tool is Scopus and Microsoft Excel. It describes how the data collection process and how many articles collected and the due date to end the data collection. This research paper has limited the period, between 2010 and 2019. The data analysis used in the current study has trend analysis, citation analysis and descriptive analysis.

CHAPTER 4: DATA ANALYSIS

4.0 Introduction

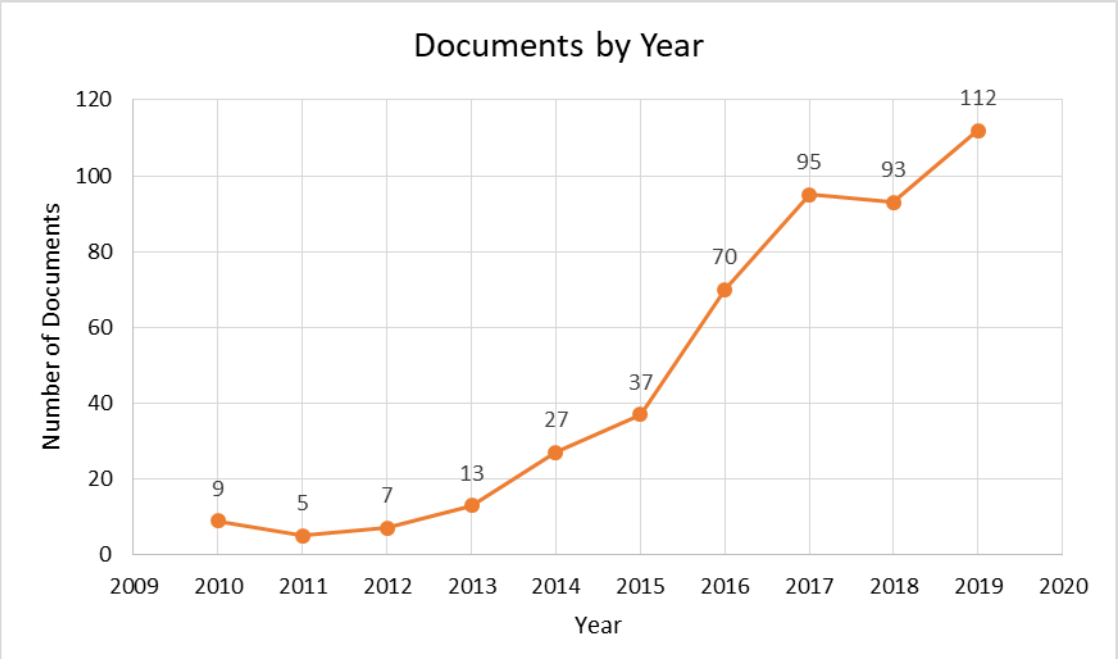
This chapter presents the findings of this study, which were obtained from the various analysis. This is the step of importing the cleaned and aggregated data into analytical tools. These tools enable author to explore the data, find patterns in it, and ask and answer any questions may have. Through this chapter, can clearly see the trends on online to offline e-commerce.

4.1 Publications

4.1.1 Publication by Year

Figure 4.0 illustrates the gradual increase in the number of publications on online to offline e-commerce articles in Scopus between 2010 and 2019. The y-axis shows the number of documents and the x-axis shows the period of time (in this case years) of the study. Since 2012 to 2015 there is a steady upward in the number of the document published from 7 to 37. From 2015 – 2019 there has a steeply increase on published documents between 37 and 112. However, the highest number of documents published in the year 2019. The year of 2010 and 2011 have slightly fewer.

Figure 4.0 Documents by Year



Source: Developed for the research

4.1.2 Keyword Overall

Table 4.1 shows how the number of certain keyword from overall data during 2010 – 2019 used by the researcher. It can be clearly seen that the highest researched keyword is O2O/ online to offline (118 times). Following by e-commerce/commerce (68 times), supply chain management (27 times), business model (16 times) and IoT/ internet of things (16 times). Then, big data (10 times) and beacon (6 times). There are three terms where game theory, service design and dual-channel have 7 times

Table 4.1 Keyword Overall

Keywords	Number of Keywords
O2O	188
E-commerce	68
Supply Chain Management	27
Business model	16
IOT	16
Big data	10
Game theory	7
Service design	7
Dual channel	7
Beacon	6

Source: Developed for the research

4.1.3 Keyword by Year

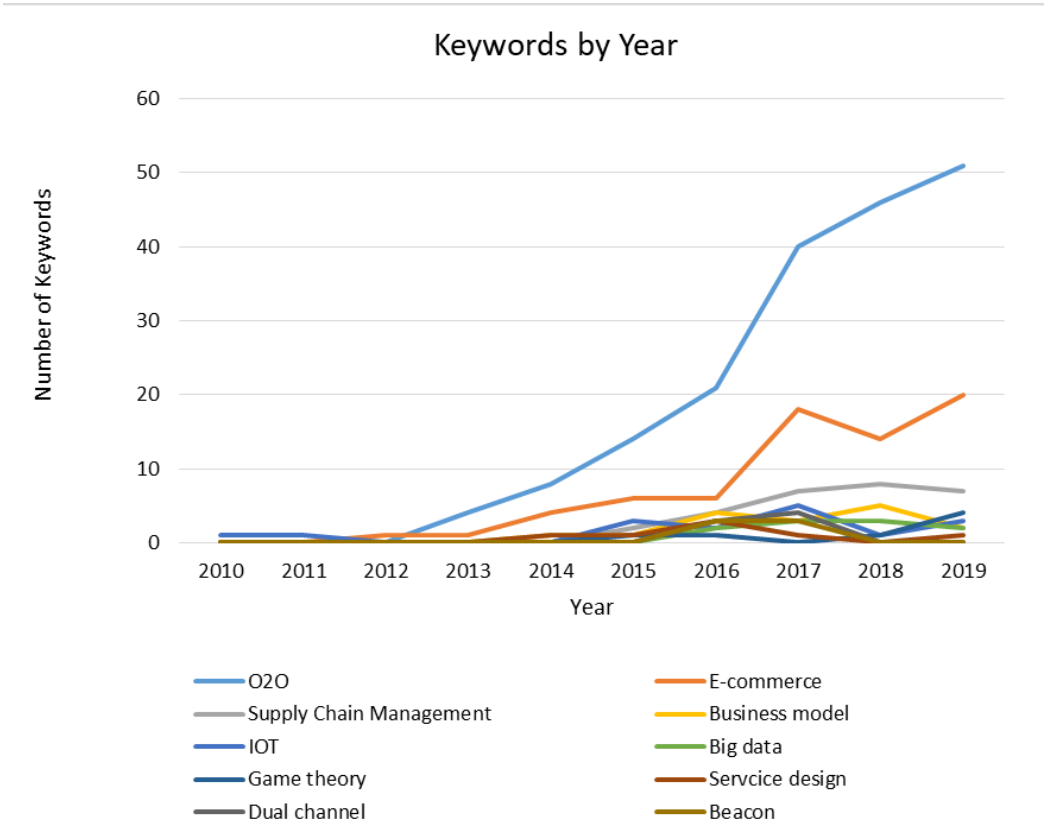
Table 4.2 illustrate how the number of certain terms will influence over the year. It can be seen clearly O2O/ online to offline and e-commerce/commerce have gradually climbed since 2012 from 4 times to 51 times and from 1times to 20 times respectively. The supply chain management has emerged in 2015 has slowly grown from 2 times to 7 times. The business model has slightly unstable from 2014 – 2019. Among ten of the terms, IoT has been used earlier since 2010, but between 2012 and 2014 this term did not mention by the authors. The keyword of big data and game theory has been appeared by the past 4 and 5 years respectively. Service design is not much popular to be used by the researcher from 2014 until 2019. Both dual channel and beacon have been far fewer mention.

Table 4.2 Keywords by Year

Keywords	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
O2O	0	0	0	4	8	14	21	40	46	51
E-commerce	0	0	1	1	4	6	6	18	14	20
Supply Chain Management	0	0	0	0	0	2	4	7	8	7
Business model	0	0	0	0	1	1	4	3	5	2
IOT	1	1	0	0	0	3	2	5	1	3
Big data	0	0	0	0	0	0	2	3	3	2
Game theory	0	0	0	0	0	1	1	0	1	4
Service design	0	0	0	0	1	1	3	1	0	1
Dual channel	0	0	0	0	0	0	3	4	0	0
Beacon	0	0	0	0	0	0	3	3	0	0

Source: Developed for the research

Figure 4.3 Keywords by Year

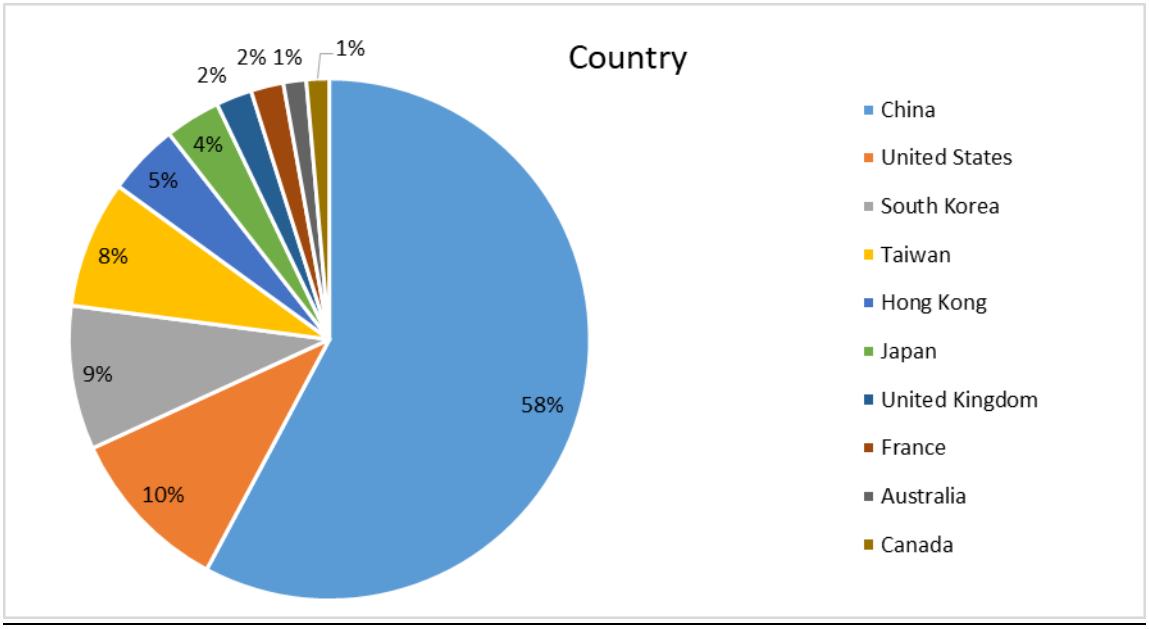


Source: Developed for the research

4.1.4 Geographic Distribution of Articles

38 countries on O2O e-commerce research contributed a total of 578 articles. The distribution of the top 10 countries is shown in figure 4.4 Out of total 578 contributions, top 10 countries contributed 493 articles (85.3%) articles. The nation with the highest production of research on O2O e-commerce is China with 285 articles (58%), followed by US, South Korea and Taiwan, with a total of 51 articles (10%), 44 articles (9%) and 39 articles (8%) respectively. Hong Kong ranked at number 5 with 22 articles (5%) contributions and Japan ranked at number 6 with 17 articles (4%). Others like UK, France, Australia and Canada have been distributed 11 articles (2%), 10 articles (2%), 7 articles (1%) and 7 articles (1%) respectively.

Figure 4.4 Geographic Distribution of Articles

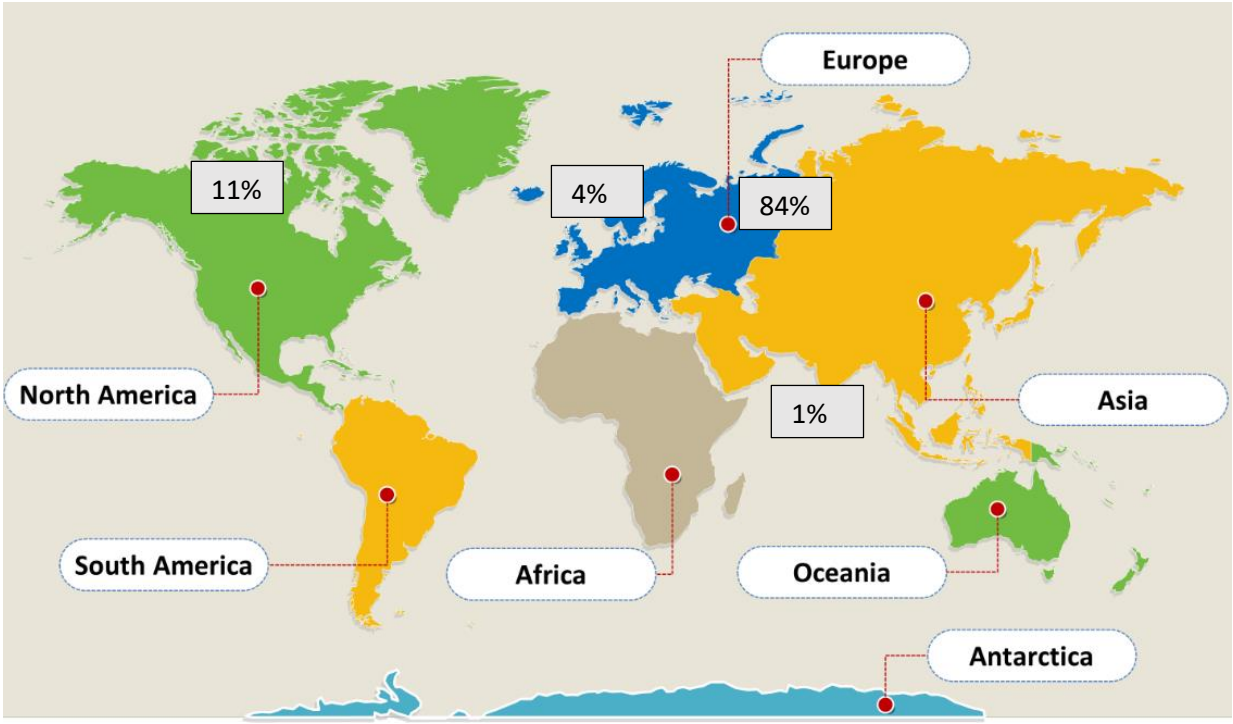


Source: Developed for the research

4.1.5 Publication of O2O E-commerce Continent

Figure 4.5 shows the O2O e-commerce continent publication. The highest publication continent is Asia has 84% (China, Hong Kong, Japan, Taiwan and South Korea). Following by North America has 11% (US and Canada), and Europe has 4% (UK and France). Last but not least, the Oceania has 1% (Australia).

Figure 4.5 Publication of O2O e-commerce continent

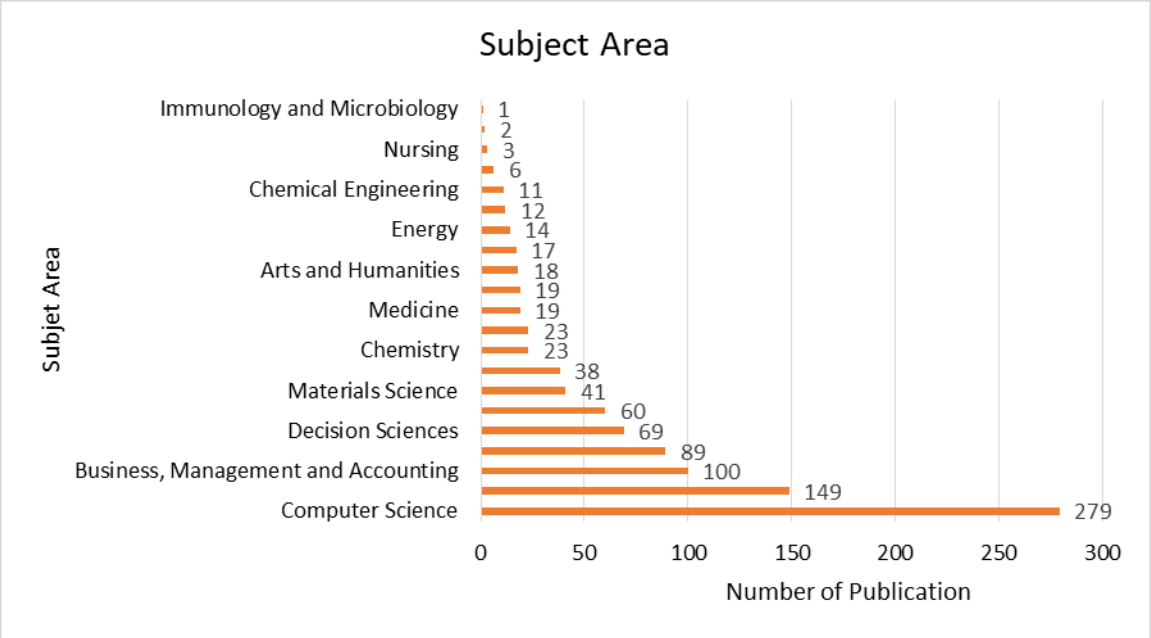


Source: Developed for the research

4.1.5 Documents by Subject Area

Figure 4.6 illustrates the articles published on online to offline e-commerce in Scopus by subject area. For e-commerce study, the maximum of the subject area is computer science with 279 articles (28.1%). Followed by business, management and accounting, decision science, material science and chemistry with a total of 149 articles (15%), 100 articles (10.1%), 89 articles (9%), and 69 articles (6.9%). Besides, Social Sciences, Materials Science, Economics, and Econometrics and Finance has been published 60 articles (6.04%), 41 articles (4.13%) and 38 articles (3.83%). Both Chemistry, and Physics and Astronomy has been contributed 23 articles (2.32%).

Figure 4.6 Documents by Subject Area



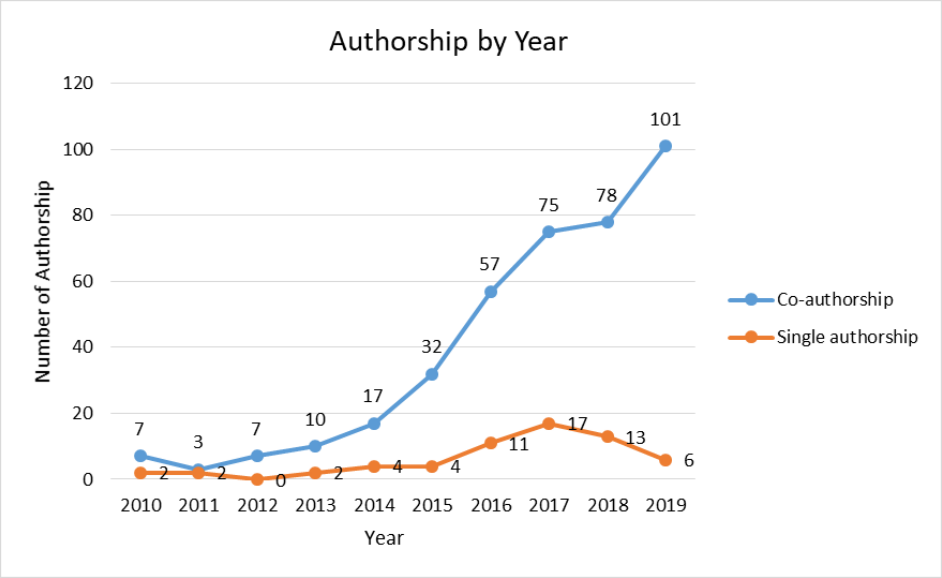
Source: Developed for the research

4.2 Authorship

4.2.1 Authorship by Year

The line graph compares the authorship from 2010 – 2019, a period of 10 years. Overall, the co-authorship has sharply increased over the period, whereas the number of single authorship that was slightly decreased. From the graph, it is clear that in 2010 the most popular type of authorship is co-authorship has been used 7 unit per year. This was higher than single authorship which was used 2 unit a year. Since 2011 the co-authorship has rapidly grown from 3 unit per year to 101 unit per year. Besides, single authorship has slightly raised between 2013 and 2017. However, from 2017 to 2019 it was gradually declined by 6 unit a year.

Figure 4.7 Authorship by Year

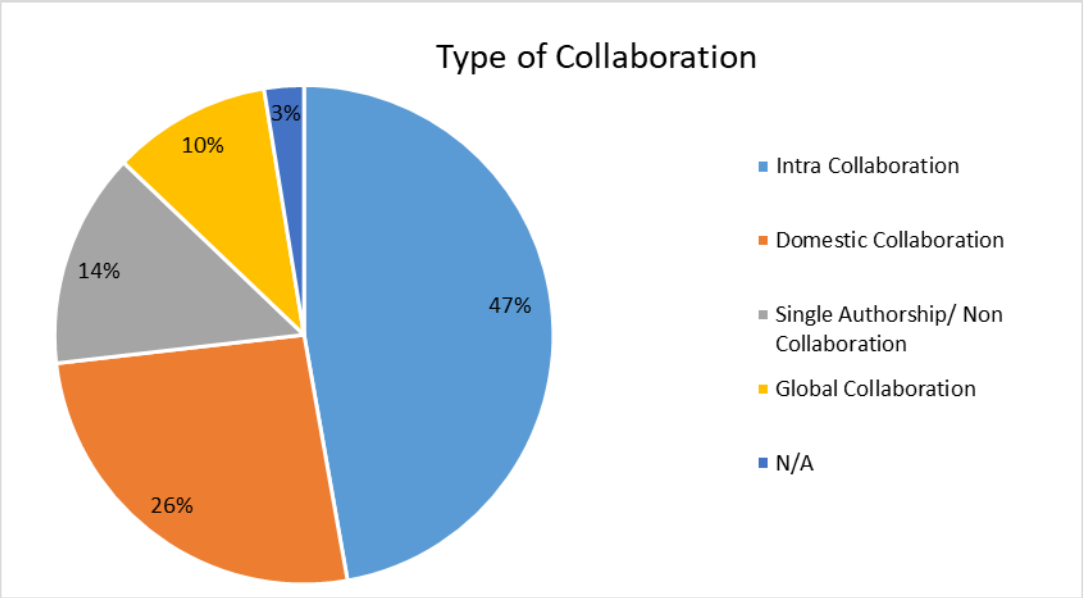


Source: Developed for the research

4.2.2 Type of Collaboration

The pie chart is about the type of collaboration in 10 years. The chart is divided into 5 parts which are intra collaboration, domestic collaboration, single authorship/ non-collaboration, global collaboration and N/A. Nowadays, the most popular type of collaboration online to offline e-commerce research is intra collaboration (47%), and the following is domestic collaboration (26%). Then, single authorship/ non –collaboration and global collaboration are 14% and 10% respectively.

Figure 4.8 Type of Collaboration

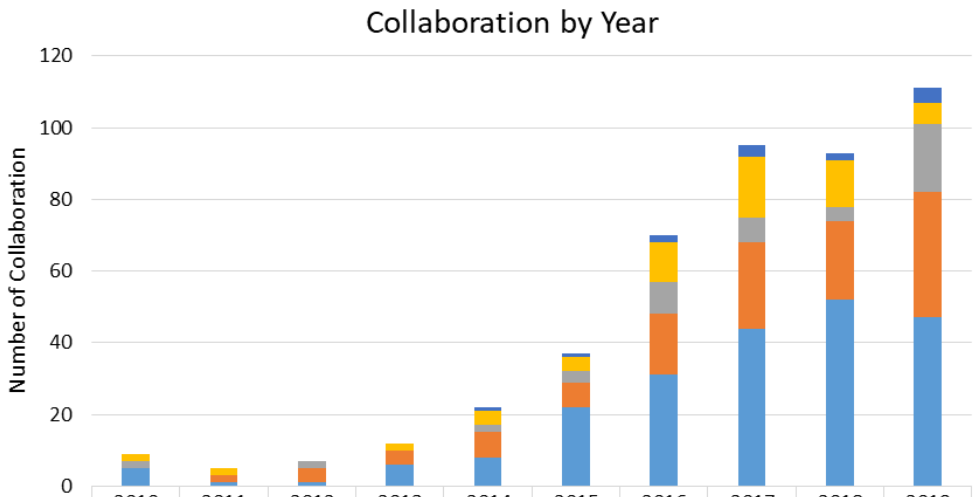


Source: Developed for the research

4.2.3 Degree of Collaboration by Year

Figure 4.9 gives information about the amount of collaboration and the degree of collaboration between 2010 and 2019. According to the chart, there were upward trends in co-collaboration. The trends over time of intra collaboration and domestic collaboration increased steadily since 2013. Based on the graph shown that global collaboration is rose steadily from 2014 and it will be a popular one of the type of collaboration in the future. For the single authorship/ non-collaboration is resulting in uncertainty due to in 2017 and 2018 are 17 and 13 number of documents respectively.

Figure 4.9 Degree of Collaboration by Years



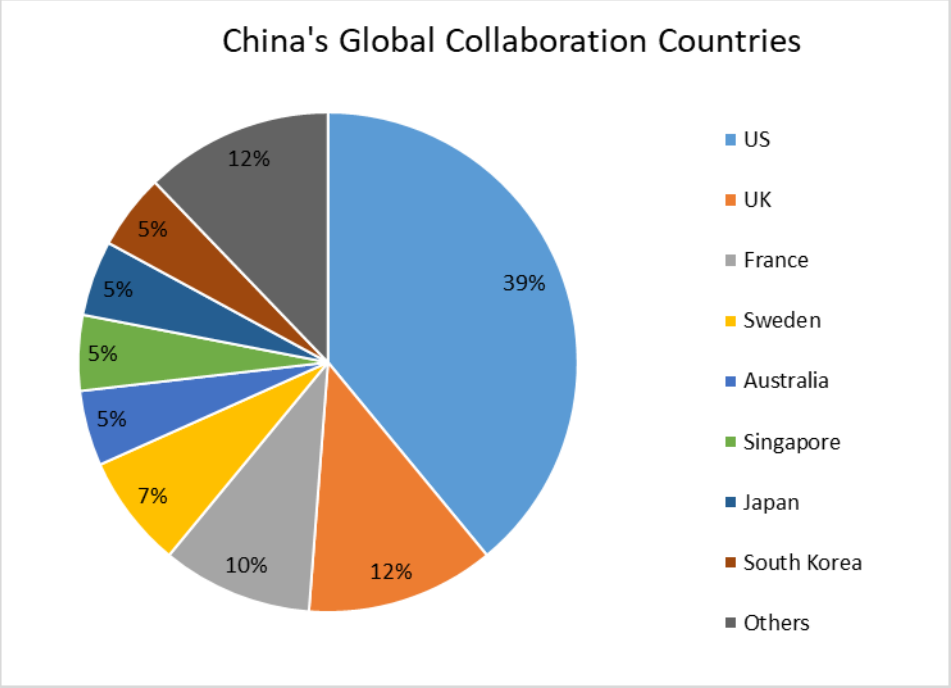
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
N/A	0	0	0	0	1	1	2	3	2	4
Single Authorship/ Non Collaboration	2	2	0	2	4	4	11	17	13	6
Global Collaboration	2	0	2	0	2	3	9	7	4	19
Domestic Collaboration	0	2	4	4	7	7	17	24	22	35
Intra Collaboration	5	1	1	6	8	22	31	44	52	47

Source: Developed for the research

4.2.4 China's Global Collaboration Countries

Figure 4.10 illustrates the percentages of different countries that China cooperation in published research articles in 10 years. The highest country than cooperate with China is the US has 16 times (39%). Following by the UK has 5 times (12%), France has 4 times (10%) and Sweden has 3 times (7%). Australia, Singapore, Japan and South Korea with a total of 2 times (2%) respectively. Others as Netherlands, Ireland, Canada, Spain and Switzerland all have 1 times (12%).

Figure 4.10 China's Global Collaboration Countries



Source: Developed for the research

4.2.5 Top Productive Authors

Table 4.11 shows the list of most productive affiliated authors. The top-ranked author is Chen, L. from Hong Kong University of Science and Technology, Hong Kong, Hong Kong (9 articles), followed by Tong, Y. from SKLSDE Lab, Beihang University, China (7 articles), Xu, K. from SKLSDE Lab, School of Computer Science and Engineering and IRI, Beihang University, China (6 articles), and She, J. from Department of Computer Science and Engineering, Hong Kong University of Science and Technology, Clear Water Bay, Kowloon, Hong Kong, Hong Kong (5 articles). The other six authors all are 4 articles on online to offline e-commerce which is Arai, D., Ogishi, T., Song, T., Wu, D., Xiao, L. and Xue, X.

Six of them are from KDDI R and D Laboratories Inc., 2-1-15 Ohara, Fujimino City, Saitama Prefecture, 356-8502, Japan; KDDI R and D Laboratories Inc., 2-1-15 Ohara, Fujimino City, Saitama Prefecture, 356-8502, Japan; SKLSDE Lab, School of Computer Science and Engineering and IRI, Beihang University, China; School of Management, University of Chinese, Academy of Sciences, Beijing, China, Stockholm Business School, Stockholm University, Stockholm, Swede; Department of Electrical Engineering, Hunan Railway Professional Technology College, Zhuz hou, 412001, China and School of Software, Tianjin University, Tianjin, 300350, China.

Table 4.11 Top Productive Authors

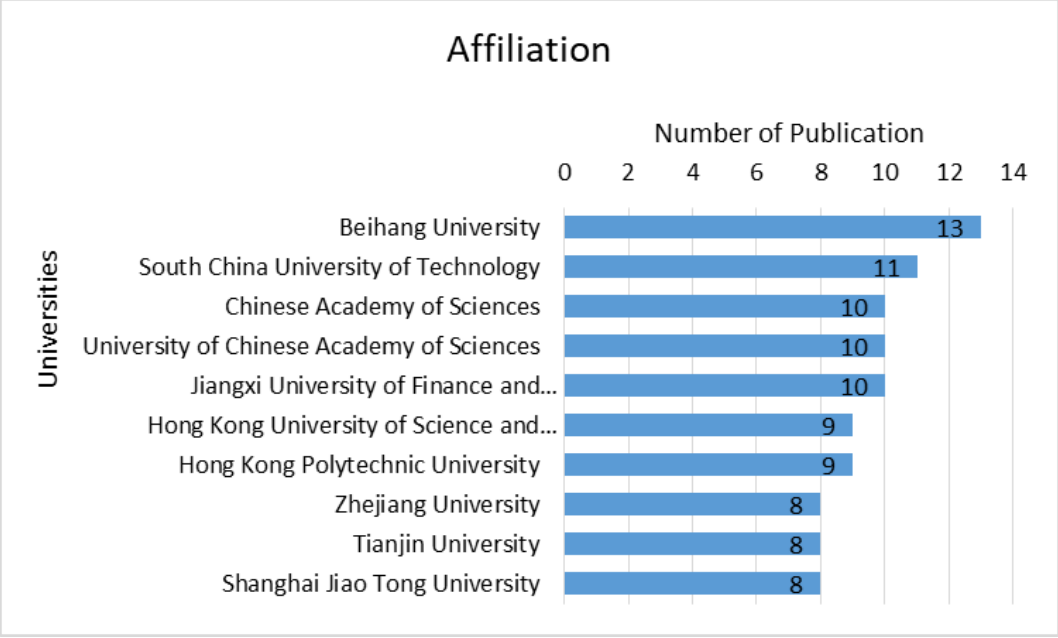
Authors	Documents	Affiliation
Chen, L.	9	Hong Kong University of Science and Technology, Hong Kong, Hong Kong
Tong, Y.	7	SKLSDE Lab, Beihang University, China
Xu, K.	6	SKLSDE Lab, School of Computer Science and Engineering and IRI, Beihang University, China
She, J.	5	Department of Computer Science and Engineering, Hong Kong University of Science and Technology, Clear Water Bay, Kowloon, Hong Kong, Hong Kong
Arai, D.	4	KDDI R and D Laboratories Inc., 2-1-15 Ohara, Fujimino City, Saitama Prefecture, 356-8502, Japan
Ogishi, T.	4	KDDI R and D Laboratories Inc., 2-1-15 Ohara, Fujimino City, Saitama Prefecture, 356-8502, Japan
Song, T.	4	SKLSDE Lab, School of Computer Science and Engineering and IRI, Beihang University, China
Wu, D.	4	School of Management, University of Chinese, Academy of Sciences, Beijing, China, Stockholm Business School, Stockholm University, Stockholm, Swede
Xiao, L.	4	Department of Electrical Engineering, Hunan Railway Professional Technology College, Zhuz hou, 412001, China
Xue, X.	4	School of Software, Tianjin University, Tianjin, 300350, China

Source: Developed for the research

4.2.6 Document by Affiliation

Prolific institutions in the publication of papers on O2O e-commerce are presented in figure 4.12. The most active affiliation was Beihang University (13 publications), and South China University of Technology (11 publications). Following by the Chinese Academy of Sciences, University of Chinese Academy of Sciences and Jiangxi University of Finance and Economics all are 10 publications. Then, Hong Kong University of Science and Technology and Hong Kong Polytechnic University have contributed 9 articles. Last but not least, Zhejiang University, Tianjin University and Shanghai Jiao Tong University have published 8 articles respectively.

Figure 4.12 Document by Affiliation

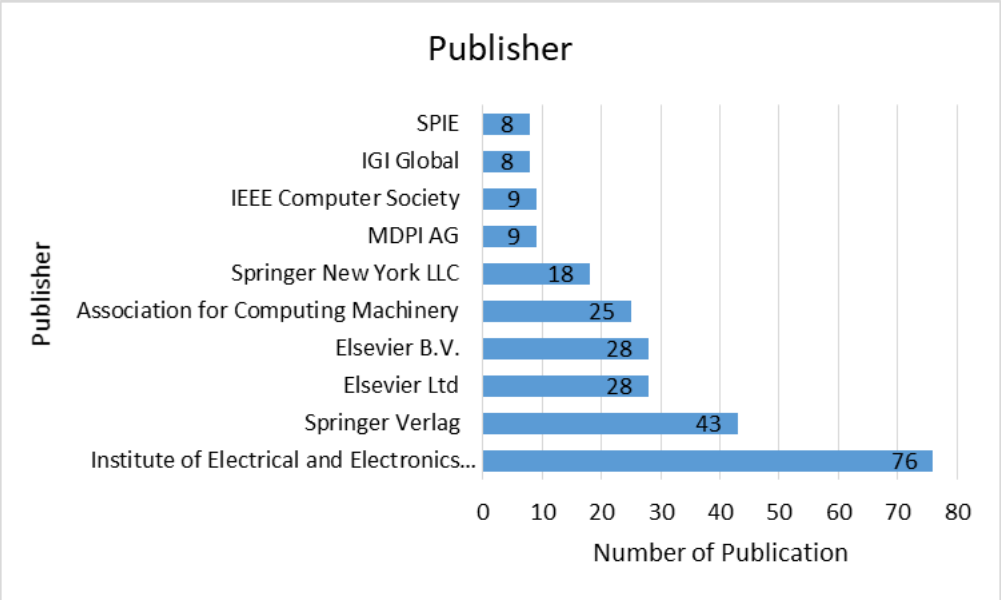


Source: Developed for the research

4.2.7 Publisher

Figure 4.13 shows the top 10 publishers on O2O e-commerce articles in Scopus from 2010 0 2019 at 10-year intervals. It can be seen clearly that the Institute of Electrical and Electronics Engineers Inc. was the top publisher on research articles about O2O e-commerce with a total of 76 publications (30.16%). The second highest publisher is Springer Verlag has published 43 articles (17.06%). Following by, Elsevier Ltd, Elsevier B.V., Association for Computing Machinery and Springer New York LLC were published 28 (11.11%), 28 (11.11%), 25 (9.92%) and 18 (7.14%) respectively. Besides, MDPI AG and IEEE Computer Society have 9 publications (3.57%) respectively. Last but not least, IGI Global and SPIE with a total of 8 publications (3.17%).

Figure 4.13 Publisher

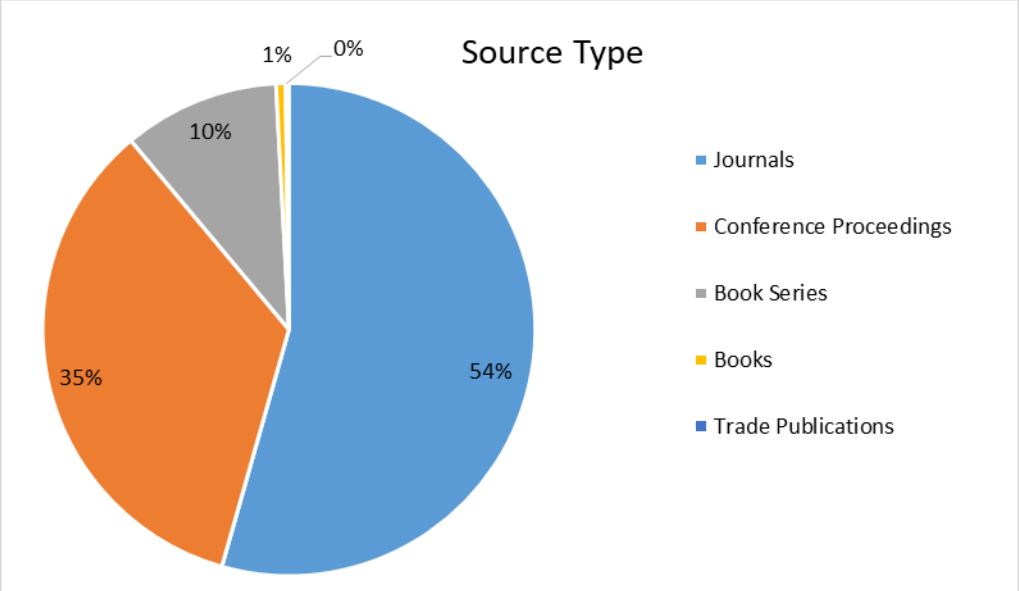


Source: Developed for the research

4.2.8 Source Type

In Scopus, the most contribution on online to offline e-commerce research articles are on journals have 260 amount of documents (54%). Followed by conference proceedings have 165 documents (35%), books series have 49 documents (10%) and books have 3 documents (1%).

Figure 4.14 Source Type

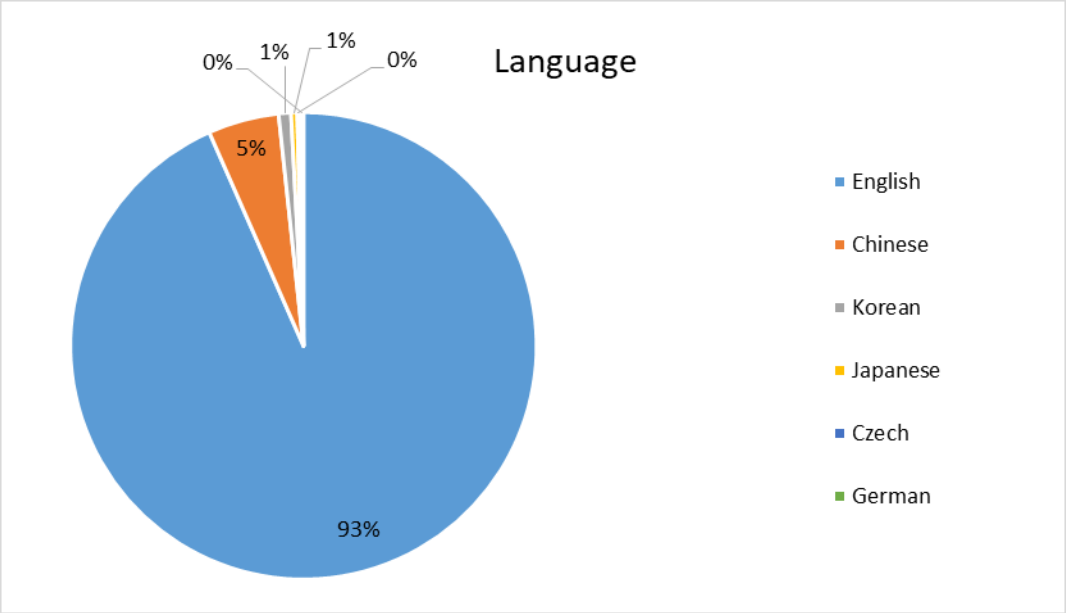


Source: Developed for the research

4.2.9 Articles Distribution by Language

Figure 4.15 illustrates the language distribution of articles. The highest articles on O2O e-commerce available in Scopus with English (437 articles, 93%), followed by Chinese (23 articles, 5%), Korean (4 articles, 1%) and others likes Japanese, Crezh and German have 2 articles, 1 article and 1 article respectively.

Figure 4.15 Language

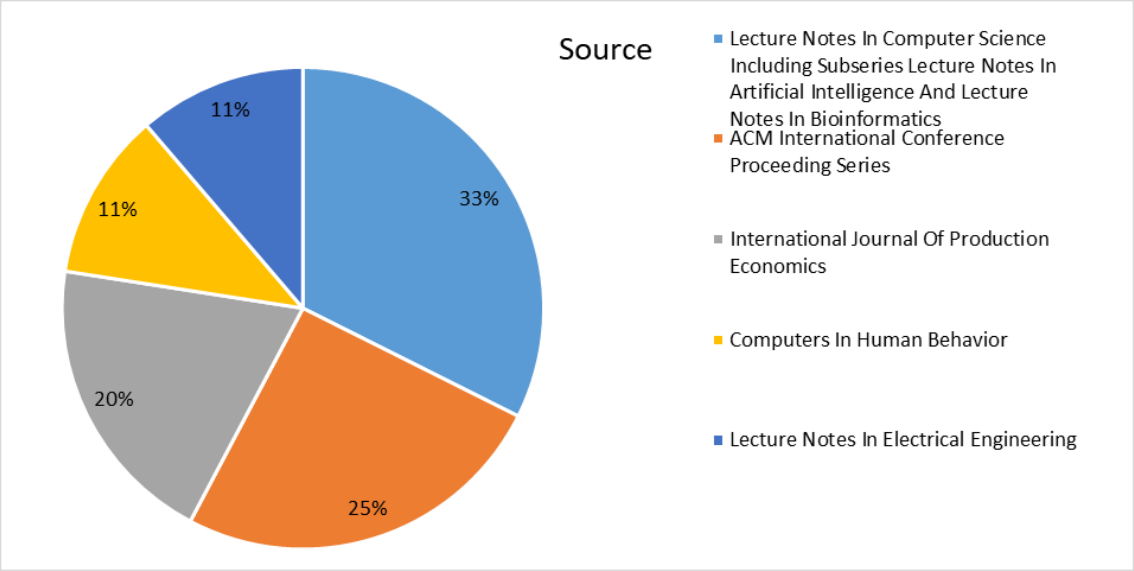


Source: Developed for the research

4.2.10 Publication by Journals

Figure 4.16 reveals the distribution of research articles by source. The "Lecture Notes in Computer Science Including Subseries Lecture Notes in Artificial Intelligence and Lecture in Bioinformatics" is the most popular source title on online to offline e-commerce which has 28 articles (33%) compared with other 4 source title. The second popular source title has 19 articles (25%) which are "ACM International Conference Proceeding Series". Following by "International Journal of Production Economics", "Computers in Human Behavior" and "Lecture Notes in Electrical Engineering" have 14 articles (20%), 8 articles (11%) and 8 articles (11%) respectively.

Figure 4.16 Source Title



Source: Developed for the research

4.3 Citation

4.3.1 Top 20 Cited Articles on O2O E-commerce from 2010 to 2019

Table 4.17 reveals the high influence of e-commerce research articles. As table 4.15 revealed, there have 2 articles that received more than 50 citations. The articles published by Ho C.-I., Lin M.-H., Chen H.-M. in 2012 “Web users' behavioural patterns of tourism information search: From online to offline “receive 74 citations. Articles published by Chen X., Wang X., Jiang X. in 2016 “The impact of power structure on the retail service supply chain with an O2O mixed channel” receive 63 citations. Xie J., Liang L., Liu L., Ieromonachou P. in 2017 “Coordination contracts of dual-channel with cooperation advertising in closed-loop supply chains” received 39 citations. Xiao S., Dong M. in 2015 “Hidden semi-Markov model-based reputation management system for online to offline (O2O) e-commerce markets” received 36 citations.

“Comparisons of initial carbon allowance allocation rules in an O2O retail supply chain with the cap-and-trade regulation” by Ji J., Zhang Z., Yang L. in 2017 and “Lateral inventory transhipment problem in the online-to-offline supply chain” by Zhao F., Wu D., Liang L., Dolgui A. in 2016 were received 35 citations. The authors of He Z., Cheng T.C.E., Dong J., Wang S. have published “Evolutionary location and pricing strategies for service merchants in competitive O2O markets” in 2016 and the authors of Wei Phang C., Tan C.-H., Sutanto J., Magagna F., Lu X. have published “Leveraging O2O commerce for product promotion: An empirical investigation in Mainland China” in 2014 with a total of 25 cited.

"Strategic introduction of the marketplace channel under spillovers from online to offline sales" by Yan Y., Zhao R., Liu Z. have contributed in 2018 with a 19 cited. Among of the 20 articles, there is only one single authorship which is Tan J.-E. has distributed "The leap of faith from online to offline: An exploratory study of Couchsurfing.org" in 2010 with a received of 18 cited. Also, there has only one article have 9 authors which are "A novel Online-To-Offline (O2O) model for pre-exposure prophylaxis and HIV testing scale-up" published in 2017 cited by 15.

Tsai T.-M., Wang W.-N., Lin Y.-T., Choub S.-C. have co-collaborated to contribute "An O2O Commerce Service Framework and its Effectiveness Analysis with Application to Proximity Commerce" in 2015 with cited by 15. Zuo X., Chin A., Fan X., Xu B., Hong D., Wang Y., Wang X. have received 14 cited on this conference paper "Connecting people at a conference: A study of influence between offline and online using a mobile social application". "Integration of online and offline channels: a view of O2O commerce" distributed by Chang Y.-W., Hsu P.-Y., Yang Q.-M. in 2018 with a cited by 12.

"Online-offline fashion franchising supply chains without channel conflicts: Choices on postponement and contracts" and "Pilot study toward realizing social effect in O2O commerce services" have published in 2019 and 2013 with cited by 11 respectively. The other three articles "Amassing and Analyzing Customer Data in the Age of Big Data: A Case Study of Haier's Online-to-Offline (O2O) Business Model" wrote by Sun S., Cegielski C.G., Li Z. published in 2015; "Online to offline (O2O) service recommendation method based on multi-dimensional similarity measurement" wrote by Pan Y., Wu D., Olson D.L. published in 2017 and "Pricing strategies of tour operator and online travel agency based on cooperation to achieve O2O model" wrote by Long Y., Shi P. published in 2017 with a total cited by 10.

Table 4.17 Top 20 Cited Articles on O2O E-commerce from 2010 to 2019

Authors	Year	Title	Cited by	Document Type
Ho C.-I., Lin M.-H., Chen H.-M.	2012	Web users' behavioural patterns of tourism information search: From online to offline	74	Article
Chen X., Wang X., Jiang X.	2016	The impact of power structure on the retail service supply chain with an O2O mixed channel	63	Article
Xie J., Liang L., Liu L., Ieromonachou P.	2017	Coordination contracts of dual-channel with cooperation advertising in closed-loop supply chains	39	Article
Xiao S., Dong M.	2015	Hidden semi-Markov model-based reputation management system for online to offline (O2O) e-commerce markets	36	Article
Ji J., Zhang Z., Yang L.	2017	Comparisons of initial carbon allowance allocation rules in an O2O retail supply chain with the cap-and-trade regulation	35	Article
Zhao F., Wu D., Liang L., Dolgui A.	2016	Lateral inventory transhipment problem in online-to-offline supply chain	35	Article
He Z., Cheng T.C.E., Dong J., Wang S.	2016	Evolutionary location and pricing strategies for service merchants in competitive O2O markets	25	Article
Wei Phang C., Tan C.-H., Sutanto J., Magagna F., Lu X.	2014	Leveraging O2O commerce for product promotion: An empirical investigation in Mainland China	25	Article

Yan Y., Zhao R., Liu Z.	2018	Strategic introduction of the marketplace channel under spillovers from online to offline sales	19	Article
Tan J.-E.	2010	The leap of faith from online to offline: An exploratory study of Couchsurfing.org	18	Conference Paper
Anand T., Nitpolprasert C., Trachunthong D., Kerr S.J., Janyam S., Linjongrat D., Hightow-Weidman L.B., Phanuphak P., Ananworanich J., Phanuphak N.	2017	A novel Online-To-Offline (O2O) model for pre-exposure prophylaxis and HIV testing scale up	15	Article
Tsai T.-M., Wang W.-N., Lin Y.-T., Choub S.-C.	2015	An O2O Commerce Service Framework and its Effectiveness Analysis with Application to Proximity Commerce	15	Article
Zuo X., Chin A., Fan X., Xu B., Hong D., Wang Y., Wang X	2012	Connecting people at a conference: A study of influence between offline and online using a mobile social application	14	Conference Paper
Chang Y.-W., Hsu P.-Y., Yang Q.-M.	2018	Integration of online and offline channels: a view of O2O commerce	12	Article
Choi T.-M., Chen Y., Chung S.H.	2019	Online-offline fashion franchising supply chains without channel	11	Article

		conflicts: Choices on postponement and contracts		
Tsai T.-M., Yang P.-C., Wang W.-N.	2013	Pilot study toward realizing social effect in O2O commerce services	11	Conference Paper
Sun S., Cegielski C.G., Li Z.	2015	Amassing and Analyzing Customer Data in the Age of Big Data: A Case Study of Haier's Online-to-Offline (O2O) Business Model	10	Article
Pan Y., Wu D., Olson D.L.	2017	Online to offline (O2O) service recommendation method based on multi-dimensional similarity measurement	10	Article
Long Y., Shi P.	2017	Pricing strategies of tour operator and online travel agency based on cooperation to achieve O2O model	10	Article

Source: Developed for the research

4.4 Conclusion

Through this chapter can have an understanding on the publication trends; what are the popular pattern of co-authorship and which journal have the highly influence on this O2O e-commerce.

CHAPTER 5: DISCUSSION, CONCLUSION AND IMPLICATIONS

5.0 Introduction

In chapter 5 reviews the research conducted. Besides, the study's main findings will be discussed. The findings of the empirical test resulting from the data analysis are presented in this chapter. Then it discusses the limitation and recommendation of the current study. Finally, the discussion on implication of the current study.

5.1 Discussion and Finding

5.1.1 Identifying the research trend of scientific publication on O2O e-commerce.

5.1.1.1 Publication by Year

The analysis shows a growing trend in contributions distributed between 2010 and 2019 and an average of 49 contributions per year. All published articles on online to offline e-commerce in Scopus from 2010 to 2019 have influenced by the booming growth of ICT. The reason is because ICT plays an important role in the maturity of e-commerce and have an impact on people's way of living, learning and working, and even how they interact with the administration and

society. Therefore, there have many researchers are publishing about O2O e-commerce articles from the last ten years.

Also, the reason why this research topic about online to offline e-commerce is increasing because this term is a well-researched strategy that has helped improve the user experience over the last decade. Although, this concept is far from new, but it should be a dramatically increased in 2019 (Adamovich, 2019). Many top retailers are trying to implement this strategy likes Alibaba, and Amazon both are the first movers on this strategy. However, e-commerce is growing rapidly, more than 80%, of sales, are still taking place in physical stores. This is because consumers more preferably have a physical touch an item (Alvin, 2018). In the fashion industry, consumers are looking for a product online before buying it, they not necessary to buy on the website. The reason is that they want have physical contact with the product such as try, touch and see. Furthermore, in-store return is also a popular retailer tactic as they realize that it is so complicated and time-consuming for most customers to send back an item via mail or courier (Alvin, 2018).

5.1.1.2 Keyword Overall and By Year

Academic journals keywords can allow others to quickly and accurately identify the articles. Authors will provide some keywords on their journals. Normally these keywords are highly relevant to the research articles content. O2O and e-commerce are emerging since 2013 and 2012 respectively continually increase until now. Normally, O2O keywords are related to supply chain management. Review the table 4.3 supply chain management will emerging when O2O start to begin popular, because of under the O2O business

model, supply chain decision completely changes price competition in traditional dual-channel supply chains. Therefore, these two terms have a strong relationship.

5.1.1.3 Geographic Distribution of Articles

The country distribute more research article is China and an average of 28 contribution per year. The e-commerce market in China has a high double-digit growth year by year. Compared with other countries China’s e-commerce market had reached a maturity stage, now the things they have to do is to maintain their position and to innovate something to gain their market share. For instance, the 11 November 2017 Double 11 event – also known as Singles ' Day when single people celebrate in China and which has become a popular shopping event (Bali, 2018). It was a clear example of the online transformation of China's consumer-led economy. There have 5 five key factors driving the e-commerce industry in China:

1. Shopping festival for e-commerce
2. Improvement of consumption
3. New retail: Instead of competing online and offline
4. Payment in digital form
5. From online to media platform

5.1.1.4 Publication of O2O E-commerce Continent

Following by the continent, Asia is published more articles compare to other continents. The reason why Asia distributes more O2O e-commerce research articles is because e-commerce revenues in the Asia Pacific region (APAC) are projected to grow by 14.2% in 2019 to hit US$ 1.2 trillion with Indonesia as the growth outperformer with an annual 22% increase in its e-commerce revenue ("APAC's e-commerce growth to hit 14.2% in 2019: Fitch Solutions", 2018). There have two main factors in driving e-commerce sales growth. The first factor is developing countries where Australia, South Korea, Taiwan and Japan have stable political and economic and high spending power. On the other hand, emerging countries where China, India, Philippines and Indonesia providing large customer base investors with 'favourable' young adult trends and increases in consumer spending. Total revenue figures show Asia e-commerce revenue expected to reach US$ 1.77 trillion by 2022, ahead of North America and Western Europe's second-placed market.

5.1.1.5 Documents by Subject Area

In the subject area, computer science is the first ranked which has distributed an average of 28 articles per year. With the growing use of the Internet, the development in network technology, and the introduction of low-priced Computers, digital trading would inevitably be one of the main channels for future trade. The development of the e-commerce system requires people with a technical background, and those individuals are most likely qualified in computer science. Computer science provides programming

languages such as C / C++ or Java, software engineering, operating systems along with UNIX, machine technology, the theory of relational databases, etc (Ge & Sun, 2000). These are a technical person's essential ingredients and the must-have for anyone interested in an IT career.

5.1.2 Determining the pattern of cooperation in co-authorship, and research on the subject of O2O e-commerce includes in detail the degree of cooperation and type of cooperation.

5.1.2.1 Type of Authorship/ Collaboration over the Year

The study of the authorship pattern aimed to determine the percentage of single and multiple authorships. The results showed a steady increase in the number of multi-authored papers. The intra collaboration has been increased in 7 times while inter collaboration has been increased by 17 times and global collaboration has been increased by 8 times. In this paper, the domestic collaboration both intra and inter are rather than global collaboration.

The reason is because co-workers from within a country or institution can work easily than with other workers who come from other countries. The workers with a diverse cultural background may create certain misunderstanding or misunderstand. For instance, a British worker told his U.S colleague “I will fax you report in a fortnight.” The U.S colleague believed it would get the report in four days, because of they did not know that the common British word fortnight means two weeks.

Unfortunately, non-collaboration is higher than global collaboration because collaboration can sometimes take much longer than expected. Postgraduate students or postdoctoral researchers who are the first authors of a project may be confused by collaborators ' ideas and spend time on unrelated yet interesting projects that might not help with the primary project. This can delay research progress (Sivakumar & Fleischman, 2016). It is important that the senior author fully controls a project's direction and provides intellectual expertise to help focus all efforts on the primary research issue.

5.1.2.2 Degree of Collaboration

From the period 2010 – 2019 degree of collaboration has been increased in 14 times. This shows that the majority of authors contributed their papers multi during the period from 2010 to 2019. Co-authorship is considered a reliable proxy for research collaborations in research articles. One of the advantages of co-authorship is invariant and verifiable. Since co-authorship is primarily based on bibliographic records, the results should be verifiable given the same data sets (Katz & Martin, 1997). A second benefit is that it could be very large the scalability of the sample size that could be analysed using this technique. The results of qualitative studies, questionnaire-based studies or case studies should be more statistically significant.

5.1.2.3 China’s Global Collaboration Countries

The bulk of O2O e-commerce papers publication from the China (58%), followed by the US (10%), South Korea (9%), Taiwan (8%) and Hong Kong (5%). According to the Joint Research Center of the

European Commission on innovation policy in China, there is more research collaboration with US more than EU (Wallace, 2019). US-Chinese co-publications more than EU-Chinese publications by about 3:1 in multiple fields, including engineering, medicine, computer science, math, and electricity. Where co-publications between the EU and China recognize the source of their funding, China is much more likely to fund them than the EU or member states. Moreover, EU Member State funding was approximately five times as frequently recognized as European Commission funding. Since 2000, China more cooperate with US and EU is rare. While Chinese research cooperation with both the EU and the US has steadily grown from 2000 to 2017, US co-publications have grown much more rapidly. “Made in China 2025” policy, China plans to become a world leader in key industries, increasing its capacity for domestic technology to minimize dependence on foreign technologies.

Several government programs help fund and encourage Chinese scientists to move beyond the borders of their country: Framework Programme 7, Horizon 2020, Thousand Talent Program, and World-Class 2.0 ("Chinese Scientists Increase Global Research Collaboration", 2018). In addition to these specific initiatives, there are departments dedicated to promoting collaboration among Chinese science and technology agencies. The three key departments are the Science and Technology Ministry, the National Foundation for Natural Science, and the Chinese Scientific Academy. Collaboration was also encouraged by the Minister of Health, the President of the Chinese Medical Sciences Academy, and the presidents and directors of universities and hospitals ("Chinese Scientists Increase Global Research Collaboration", 2018).

5.1.2.4 Document by Affiliation

Results from research institution-wise reports found that the highest contribution was from Beihang University (14%), South China University of Technology (12%), Chinese Academy of Sciences (11%), University of Chinese Academy of Sciences (11%) and Jiangxi University of Finance and Economics (10%).

Beihang University is undertaking a large number of national (or national defense) scientific research tasks and joint development, education and research projects. Over the past five years, Beihang has conducted more than 8,000 planned projects, with a budget of almost 8 billion yuan, covering almost 10,000 development, teaching and research projects in scientific and technological cooperation, and cooperation funds have reached 4 billion yuan. Of the top ten universities in the country with the highest per capita scientific research funding, the overall amount of scientific research funding remained stable.

South China University of Technology (SCUT) is under "Project 985" and "Project 211" a key and comprehensive research-oriented university. After 1978, over 36,000 scientific research activities have been conducted by SCUT. It has also been awarded 812 awards at or above the provincial level, including 64 national awards and 113 first prizes at the provincial or ministerial level.

The Chinese Academy of Sciences is the cornerstone of China's drive to explore and harness high-tech and natural sciences to China and the world's advantage. Comprising a large research and development network, a merit-based educational environment, and

a higher education system, CAS puts together Chinese and worldwide scientists and engineers to solve both conceptual and practical problems utilizing world-class scientific and management methods.

There have been great achievements in scientific research at Jiangxi University of Finance and Economics (JUFE) The University received 23 National Social Science Fund projects in 2017, including two main programs, 19 general projects and 2 youth ventures. JUFE performs in-depth research to provide significant research results to solve key economic and social development issues, policy recommendations and guidance on government decision-making and business.

5.1.2.5 Source Type

The most contribution are on journals (54%), followed by conference paper (35%), book series (10%), and books (1%). Scientific journals include articles written in an academic field by specialists. It may address very specific research subjects or limited research areas. Normally they include bibliographies. For most research papers at university level, author rely heavily on academic articles. Author can use them to investigate the topic, learn what others have studied about the topic, and find bibliographies that will guide author to other relevant research ("Research Guides: General Library Research Tutorial: Module 3: Understanding Source Types"). Therefore, most research paper are contributed on journals.

5.1.2.6 Language

The most published article in Scopus language are on English (93%) and Chinese (5%). Due to, English is generally regarded as the scientific community's lingua franca. In Scopus approximately 80% of all indexed journals are published in English. Because of the political and economic influence all people are acceptance of English as the international language over other nominee languages such as Chinese, French, German, Russian or Spanish (Weijen, 2012).

5.1.2.7 Publication by Journals

Most on online to offline e-commerce paper were published in Lecture Notes in Computer Science Including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics with a total of 23 articles (33%). Following by ACM International Conference Proceeding Series with 18 publications (25%), International Journal of Production Economics with 14 publications (20%), Computers in Human Behavior with 8 publications (11%) and Lecture Notes in Electrical Engineering with 8 publications (11%).

5.1.3 To examine the output of scientific publication on O2O e-commerce

5.1.3.1 Top 20 Cited Articles on O2O E-commerce from 2010 to 2019.

The results of year-wise citation distribution showed that a large number of citations were in 2012 (74 citations) followed by 2016 with (63 citations), 2017 with (39 citations) and so on.

5.2 Limitation

A limitation in this paper is that focusing on 1 database and it cannot represent publication in this area. This will require an author to limit the scope of the study, the scale of the test, or a major barrier to identifying a pattern and a meaningful relationship. This will lead author trouble to explain these limits, to give reasons why the author thinks information is incomplete or inaccurate.

A second limitation is to access the databases. Nowadays, there have many famous digital databases such as Web of Science, Google Scholar and Scopus. Most of the online database need to pay the fees and create an account to be their members just can access to refer the articles. This research is collected secondary data which relies on access to persons, organizations or records, and for whatever cause access is withheld or otherwise limited, the explanations for this need to be clarified. However, UTAR permits post-graduate student's access Scopus only, therefore the data collected will narrow.

A limit of time is another limitation in this research. This is because in initial researcher use the traditional method to collect the data from Scopus. For instance, download the articles information one by one. Therefore, a researcher has already waste a lot of time to collecting the data. Also, a quality research articles require to dedicate years to do the analysis of particular research issue, the time available to analyse a research question and assess the improvement or consistency within the test is restricted by the date of assignment.

Last but not least, language is also another limitation in this study. In this paper, only using 1 database which is Scopus, Scopus most article are published in English. This will lead researcher missing some important information/data that published in other language.

5.3 Recommendation

A recommendation is that the author should try to access other academic databases such as World Wide Science, CNKI, Semantic Scholar, Search Team, Jurn, etc. According to this action, the author does not have required to limit the scope of the study, the scale of the test, or has a major barrier to identifying a trend and enables to gather the latest and accurate data/ information.

To avoid waste time in collecting data, researcher can go through YouTube or Google to learn or find the software that will help researcher easily to collect the data and do the data analysis. To ensure publish a quality research article researcher should plan the time to complete the research articles. The author can have a ten-week plan to accomplish the article into perfection. For instance, the author can choose a topic includes pre-reading by two weeks; study the source detection and analysis and record taking by three weeks; write a thesis statement, compose a theme sentence or hypothesize three days; designing the paper like structure collection, subtopic recognition, outline by four days; use three week to have first draft writing; have a final draft by four days and finishing touches on title section, bibliography, etc. by three days. Have a time plan allow the author to complete the task on time and produce a quality paper.

A recommendation in this paper is to implement the collaboration. Either domestic collaboration or global collaboration, the purpose of this is to enhance knowledge and insight in this emerging topic.

5.4 Implication

In this paper, the type of research design is descriptive and quantitative. Therefore, this research design provides a lot of possibilities for future research in terms of the development of hypothesis and verification of definition. However, to improve and further expand the new findings, further work will be required.

The current study will provide a research trends in this emerging topic in terms of popular keywords, top journal citation and the pattern of collaboration. The data collection method is using bibliometric study on secondary data where are the academic journal information. Bibliometric study regarded as a useful starting point for new research on emerging topic because it enable for a holistic perspective of the studied context of a particular topic. Through this study researchers can investigate the topic, learned what others have studied about this topic and find a bibliographic that will researchers to a relevant research.

So far, not many studies have been carried out to investigate the research trend in this field in this new subject related to e-commerce. This study allows others such as governments, academic lecturers, post-graduate students and companies to more understanding about this new e-commerce concept online to offline (O2O) in Malaysia and globally. For instance, Malaysia has a lot of potential to become the leader in e-commerce market in Southeast Asia. Among the Asia countries, Alibaba decided to open their second physical store in Malaysia. Their first physical store open in Funan, China. Alibaba has been described Malaysia as a "priority market" and "critical pillar" in the international strategy of the company.

Through the finding, researchers can understanding what are the type of collaboration has been promoted to conduct in scientific research. China is a country that have some government programs to encourage their scientific researchers to conduct collaboration and also supported by their different agencies. This finding may help researchers if they aimed to collaboration with other countries China is a

best option to them. Therefore, researchers can collaborate with others to conduct another relevant research on this emerging topic.

5.5 Conclusion

The current study presented global e-commerce via bibliometric analysis published in the Scopus database. In this paper gathered 468 articles on O2O e-commerce between 2010 and 2019. The current study reviews the highly influential research into e-commerce and the philosophical history for research into e-commerce.

Although the current study provided comprehensive insights into e-commerce research's information base, it has some drawbacks. First, only include articles published in the top e-commerce journals listed in the Scopus database, which could influence the study's generalization. Many academic papers in the areas of accounting, management information systems, computer science, information science, management and marketing have been published in the top tier journals. In this research, the scope did not include several high-quality and high-influence research articles on e-commerce. In addition, the current study only reviews articles' keywords to find out the theoretical background of research into e-commerce.

In this paper, provides valuable integration and different perspectives on research into e-commerce. A useful briefing would be provided by the current study for field newcomers.

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Appendices

Table 1.10 Term of Definition

Term	Definition
E-commerce	Commercial transactions conducted online.
Online-to-offline (O2O)	Online-to-offline (O2O) e-commerce is a business strategy designed to bring online customers to brick and mortar locations as well as create a seamless digital experience before, during, and after.
Co-author	one of two or more people who write a book, article, report, etc. together
Citation	A citation is a link to the information source used in the analysis.

Source: Developed for the research

Table 2.9 Comparison between traditional commerce vs e-commerce

Basic for comparison	Traditional commerce	E-commerce
Meaning	It is a traditional approach for buying in-person products and services that includes dealing face to face	It conducts trading or exchanging data on the internet electronically
Usage	It is old and still in use where it is impossible to access the digital network	It's used to save precious time and money
Process	Anyone can follow it regardless of education or expertise	If the client has a fundamental knowledge of digital gadgets, it is simpler to use and function
Mode	It can be in any non-electronic or manual form	It is only available in electronic or digital mode
Accessibility	Limited Time	Unlimited time
Physical inspection	Before buying, goods can be physically inspected	Before buying, goods cannot be physically inspected
Customer interaction	Screen-to-face	Face-to-face
Business	In this model, more business is difficult to do	More business can easily be done without any problems
Maintenance	It is cost-effective because products need to be displayed and displayed to attract clients	It is easier to keep this as the only warehouse is sufficient to store the products.

Source: (E-commerce vs traditional commerce: Learn The 9 Important Differences, 2019)

Table 2.10 Comparison between B2B vs B2C

Comparison	B2B	B2C
Customer	Company and business	Consumer
Focus on	Relationship	Product
Quantity of merchandise	Large	Small
Relationship	Supplier - Manufacturer Manufacturer - Wholesaler Wholesaler - Retailer	Retailer - Consumer
Buying and selling cycle	Lengthy	Short
Buying decision	Planned and logical, based on requirements	Emotional, based on desire and want
Creation of brand value	Confidence and mutuality	Advertisement and promotion

Source: (Surbhi S, 2018)

Table 2.11 Advantages and disadvantages of customer-to-customer

	Advantages	Disadvantages
External Environment	The fast rhythm of life makes individuals increasingly need a concise way to shop quickly. Also, payment for electronic commerce, logistics, authentication, standard, credit, further improvement of this support environment.	There do not state out clearly about the laws of internet shopping. It goes against C2C e-business growth.
C2C Industry	The macro-environment of c2c e-commerce is steadily improving, the business scale and the e-commerce industrial chain, are continuously improving.	The C2C e-business industry has three significant bottlenecks, which are credit, payment and distribution.
Operator	The third-party e-commerce platform makes a person online save the start-up capital lot compared to the entity store.	The online business model requires entrepreneurs to have fundamental computer skills, marketing knowledge, legal sense and entrepreneurship.
Consumer	Convenient time	Many customers are still using the traditional shopping method. Due to there is concern about browsing and searching on the Internet about commodity data, using instant messaging instruments and vendor communication, paying through the network.

Source: (Xu, 2011)

Table 4.1 Keyword Overall

Keywords	Number of Keywords
O2O	188
E-commerce	68
Supply Chain Management	27
Business model	16
IOT	16
Big data	10
Game theory	7
Service design	7
Dual channel	7
Beacon	6

Source: Developed for the research

Table 4.2 Keyword by Year

Keywords	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
O2O	0	0	0	4	8	14	21	40	46	51
E-commerce	0	0	1	1	4	6	6	18	14	20
Supply Chain Management	0	0	0	0	0	2	4	7	8	7
Business model	0	0	0	0	1	1	4	3	5	2
IOT	1	1	0	0	0	3	2	5	1	3
Big data	0	0	0	0	0	0	2	3	3	2
Game theory	0	0	0	0	0	1	1	0	1	4
Service design	0	0	0	0	1	1	3	1	0	1
Dual channel	0	0	0	0	0	0	3	4	0	0
Beacon	0	0	0	0	0	0	3	3	0	0

Source: Developed for the research

Table 4.11 Top Productive Authors

Authors	Documents	Affiliation
Chen, L.	9	Hong Kong University of Science and Technology, Hong Kong, Hong Kong
Tong, Y.	7	SKLSDE Lab, Beihang University, China
Xu, K.	6	SKLSDE Lab, School of Computer Science and Engineering and IRI, Beihang University, China
She, J.	5	Department of Computer Science and Engineering, Hong Kong University of Science and Technology, Clear Water Bay, Kowloon, Hong Kong, Hong Kong
Arai, D.	4	KDDI R and D Laboratories Inc., 2-1-15 Ohara, Fujimino City, Saitama Prefecture, 356-8502, Japan
Ogishi, T.	4	KDDI R and D Laboratories Inc., 2-1-15 Ohara, Fujimino City, Saitama Prefecture, 356-8502, Japan
Song, T.	4	SKLSDE Lab, School of Computer Science and Engineering and IRI, Beihang University, China
Wu, D.	4	School of Management, University of Chinese, Academy of Sciences, Beijing, China, Stockholm Business School, Stockholm University, Stockholm, Swede
Xiao, L.	4	Department of Electrical Engineering, Hunan Railway Professional Technology College, Zhuz hou, 412001, China
Xue, X.	4	School of Software, Tianjin University, Tianjin, 300350, China

Source: Developed for the research

Table 4.17 Top 20 Cited Articles on O2O E-commerce from 2010 to 2019

Authors	Year	Title	Cited by	Document Type
Ho C.-I., Lin M.-H., Chen H.-M.	2012	Web users' behavioural patterns of tourism information search: From online to offline	74	Article
Chen X., Wang X., Jiang X.	2016	The impact of power structure on the retail service supply chain with an O2O mixed channel	63	Article
Xie J., Liang L., Liu L., Ieromonachou P.	2017	Coordination contracts of dual-channel with cooperation advertising in closed-loop supply chains	39	Article
Xiao S., Dong M.	2015	Hidden semi-Markov model-based reputation management system for online to offline (O2O) e-commerce markets	36	Article
Ji J., Zhang Z., Yang L.	2017	Comparisons of initial carbon allowance allocation rules in an O2O retail supply chain with the cap-and-trade regulation	35	Article
Zhao F., Wu D., Liang L., Dolgui A.	2016	Lateral inventory transhipment problem in online-to-offline supply chain	35	Article
He Z., Cheng T.C.E., Dong J., Wang S.	2016	Evolutionary location and pricing strategies for service merchants in competitive O2O markets	25	Article
Wei Phang C., Tan C.-H., Sutanto J., Magagna F., Lu X.	2014	Leveraging O2O commerce for product promotion: An empirical investigation in Mainland China	25	Article

Yan Y., Zhao R., Liu Z.	2018	Strategic introduction of the marketplace channel under spillovers from online to offline sales	19	Article
Tan J.-E.	2010	The leap of faith from online to offline: An exploratory study of Couchsurfing.org	18	Conference Paper
Anand T., Nitpolprasert C., Trachunthong D., Kerr S.J., Janyam S., Linjongrat D., Hightow-Weidman L.B., Phanuphak P., Ananworanich J., Phanuphak N.	2017	A novel Online-To-Offline (O2O) model for pre-exposure prophylaxis and HIV testing scale up	15	Article
Tsai T.-M., Wang W.-N., Lin Y.-T., Choub S.-C.	2015	An O2O Commerce Service Framework and its Effectiveness Analysis with Application to Proximity Commerce	15	Article
Zuo X., Chin A., Fan X., Xu B., Hong D., Wang Y., Wang X	2012	Connecting people at a conference: A study of influence between offline and online using a mobile social application	14	Conference Paper
Chang Y.-W., Hsu P.-Y., Yang Q.-M.	2018	Integration of online and offline channels: a view of O2O commerce	12	Article
Choi T.-M., Chen Y., Chung S.H.	2019	Online-offline fashion franchising supply chains without channel	11	Article

		conflicts: Choices on postponement and contracts		
Tsai T.-M., Yang P.-C., Wang W.-N.	2013	Pilot study toward realizing social effect in O2O commerce services	11	Conference Paper
Sun S., Cegielski C.G., Li Z.	2015	Amassing and Analyzing Customer Data in the Age of Big Data: A Case Study of Haier's Online-to-Offline (O2O) Business Model	10	Article
Pan Y., Wu D., Olson D.L.	2017	Online to offline (O2O) service recommendation method based on multi-dimensional similarity measurement	10	Article
Long Y., Shi P.	2017	Pricing strategies of tour operator and online travel agency based on cooperation to achieve O2O model	10	Article

Source: Developed for the research