A STUDY OF PERCEPTIONS AND BARRIERS OF BINGOBOX TECHNOLOGY IN MALAYSIA.

NURHANIES BINTI MOHD ABIDI

Faculty of Technology Management and Technopreneurship

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

A STUDY OF PERCEPTIONS AND BARIERS OF BINGOBOX TECHNOLOGY IN MALAYSIA

NURHANIES BINTI MOHD ABIDI

This thesis is submitted in partial fulfilment of the requirements for the award of Bachelor of Technology Management (Technology Innovation) with Honors

Faculty of Technology Management and Technopreneurship
Universiti Teknikal Malaysia Melaka (UTeM)

2022

APPROVAL

‘I hereby declare that I have read and go through this dissertation/report/thesis and certify that, this thesis is satisfactory in the sense of scope and quality as a partial fulfilment the requirements for the award of Bachelor of Technology Management (Innovation) with Honours and will submitted to the Universiti Teknikal Malaysia Melaka.’

TS DR NURULIZWA BINTI ABDUL RASHID
TIMBALAN DEKAN PENYELIDIKAN DAN PENGAJIAN SISWAZAH
FAKULTI PENGURUSAN TEKNOLOGI DAN TEKNOUSAHAWANAN
UNIVERSITI TEKNIKAL MALAYSIA MELAKA

SUPERVISOR’S SIGNATURE : ……

SUPERVISOR NAME : TS Dr. Nurulizwa Binti Abdul Rashid

DATE : 02 February 2023

NOR RATNA BINTI MASROM
Pensyarah
Fakulti Pengurusan Teknologi dan Teknousahawanan
Universiti Teknikal Malaysia Melaka

PANEL’S SIGNATURE : ……

PANEL NAME : Pn. Nor Ratna Binti Masrom

DATE : 02 February 2023

DECLARATION

I hereby declared that this thesis entitled

"A STUDY OF PERCEPTIONS AND BARRIERS OF BINGOBOX TECHNOLOGY IN MALAYSIA"

is the result of my own research except as cited in the references. The thesis has not been accepted for any degree and is not concurrently submitted in the candidature of any other degree.

SIGNATURE: *hanies*

NAME : NURHANIES BINTI MOHD ABIDI

DATE : 19 JUN 2022

DEDICATION

I would like to devote my gratitude to my precious family members who have helped and inspired me all the time, beloved supervisor Dr Nurulizwa Binti Abdul Rashid, who are willing to spend a lot of time guiding me and my classmates who had also share their knowledge during the study. Without their blessing and support, this study are nowhere to be complete.

ACKNOWLEDGEMENT

I would like to take this chance to appreciate my hardworking and genuine supervisor for all of her help and advice, Dr. Nurulizwa Binti Abdul Rashid. Thank you for sharing your knowledge and experience, which has always been supportive and motivating me during my journey on completing this Final Year Project.

In addition, Not to forget, thank you to my family, classmates, and friends for always being willing to assist and encourage me in my journey to complete my final year thesis.

ABSTRACT

Since pandemic COVID-19 have been widely spread throughout the globe, people tend to take precaution in order not to have contact with the virus themselves. This automatically shift the way on how we as a consumer, buying our products. From traditional ways of going to physical stores and paying with cash, we now have option to go cashless and contactless with the emerging of unmanned store. The researcher believe that this new technology could be helpful for customer to finally shop safely without worrying about contacting the virus. However, this is a relatively new concept and technology in Malaysia. Hence, the purpose of this research conducted to investigate the customer perceptions and the barriers of using unmanned store which is BingoBox in Malaysia. The qualitative research method was used to collect information through an online interview session with 5 respondents that resides or work in Kuala Lumpur and Selangor that have or at least acknowledge the existence of BingoBox. There are three perceptions on unmanned store technology which are ease of useness, facilitating condition and price value. Meanwhile there are four barriers of using BingoBox technology which are usage, technology readiness and psychological behavior, security and image barrier. Through this research, the researcher hope that it would help those who are interested in opening their own unmanned store to know more from customer perspective.

Keywords – *Unmanned Store, BingoBox, customer perceptions, barriers*

ABSTRAK

Memandangkan wabak COVID-19 telah merebak secara meluas ke seluruh dunia, orang ramai cenderung untuk mengambil langkah berjaga-jaga agar tidak berjangkit dengan virus itu sendiri. Ini secara automatiknya mengubah cara kita sebagai pengguna, membeli produk kita. Daripada cara tradisional iaitu pergi ke kedai fizikal dan membayar dengan tunai, kami kini mempunyai pilihan untuk pergi tanpa tunai dan tanpa sentuhan dengan kemunculan kedai tanpa pemandu. Penyelidik percaya bahawa teknologi baharu ini boleh membantu pelanggan untuk membeli-belah dengan selamat tanpa perlu risau tentang virus. Walau bagaimanapun, ini adalah konsep dan teknologi yang agak baru di Malaysia. Justeru, tujuan kajian ini dijalankan adalah untuk menyiasat persepsi pelanggan dan halangan penggunaan kedai tanpa bantuan manusia iaitu BingoBox di Malaysia. Kaedah kajian kualitatif digunakan untuk mengumpul maklumat melalui sesi temu bual dalam talian dan juga secara bersemuka dengan 5 orang responden yang menetap atau bekerja di Kuala Lumpur dan Selangor yang mengenali atau sekurang-kurangnya mengetahui akan kewujudan BingoBox. Terdapat tiga persepsi terhadap teknologi kedai tanpa bantuan manusia ini iaitu kemudahan kegunaan, keadaan memudahkan dan nilai harga. Sementara itu terdapat empat halangan penggunaan teknologi BingoBox iaitu penggunaan, kesediaan teknologi dan tingkah laku psikologi, keselamatan dan halangan imej. Melalui kajian ini, pengkaji berharap ia dapat membantu mereka yang berminat membuka kedai tanpa pemandu sendiri untuk mengetahui lebih lanjut dari sudut pelanggan.

Kata Kunci – Kedai Tanpa Bantuan Manusia, BingoBox, Persepsi Pelanggan, halangan

TABLE OF CONTENT

CHAPTER 5 CONCLUSION AND RECCOMENDATION

LIST OF FIGURES

LIST OF TABLES

LIST OF ABBREVIATION

ABBREVIATION	MEANING
IoT	Internet of Things
AI	Artificial Intelligence
IBM	International Business Machines
RFID	Radio Frequency Identification
4IR	Fourth Industrial Revolution
RMKe-12	Rancangan Malaysia ke-12
WKB	Wawasan Kemakmuran Bersama
EPU	Economy Planning Unit
PMO	Prime Minister Department
R&D&C&I	Research, Development, Commercialization and Innovation
TAM	Technology Acceptance Model
KL	Kuala Lumpur
WHO	World Health Organization
COVID -19	Coronavirus Disease 2019
MCO	Movement Control Order
CDC	Centre for Disease Control and Prevention
GDP	Gross Domestic Product
SRT	Smart Retail Technology
UID	Unique Identifiers
IP	Internet Protocol
CRM	Customer Relationship Management

NFC	Near Field Communication
QR CODE	Quick Response Code
CEO	Chief Executive Officer
TR	Technology Readiness

LIST OF APPENDICES

CHAPTER 1

INTRODUCTION

1.0 INTRODUCTION

This research study's introduction begins with a brief overview of the research context, and the following description of the unmanned shop technology in Malaysia is given without going into excessive detail. The statement of the problem, the research questions, the research objectives, and the scope of the investigation, the noteworthy findings, and the limitations of the study will come later. After that, the chapter comes to an end with the summary.

1.1 BACKGROUND OF STUDY

The convenience store sector of the retail industry in this country is seeing particularly rapid growth as of late. During the period between 2016 and 2022, it is anticipated that the total number of convenience stores in Malaysia would increase at a compound annual growth rate of 6%. This demonstrates without a doubt that convenience stores have always been an important part of the modern supermarket retail industry. These shoppers recognised this channel of shopping for its handy locations, extended hours of operation, one-stop shopping, grab-and-go food options, and quick transactions. Convenience stores offer speed of service to time-starved consumers, who want to get in and out of the store quickly. Artificial intelligence was used at the convenience shop in order to increase its overall performance. Artificial intelligence is also being utilised in the retail business to analyse massive amounts of data in order to forecast client demand and preferences.

Nowadays, IoT and Artificial Intelligence (AI) technology has disrupted many industries. It is simulate human processes by computer systems that including computer science, symbolic learning, and machine learning. Currently, there are mainly two types of existing AI that are Reactive machines and Limited memory. Reactive machines were designed for narrow purposes. A famous example is IBM's Deep Blue, a machine that beat chess Grandmaster, Garry Kasparov in 1997. Reactive machine that sees the pieces on a chess board and reacts to them. But it does not have memory and cannot use earlier information to predict future actions for improvement. Limited memory can use previous information to tell future decisions such as self-driving cars. AI tools have several functions for businesses such as image recognition, speech recognition, chatbot, natural language generation, sentiment analysis, etc. (Margaret Rouse, 2017).

The retail store sector is currently experiencing an up and coming trend that involves using IoT and AI technology in their store. This trend could be seen in smaller stores that are starting to not use any physical worker 24 hours a day, seven days a week. Alternately referred to as cashier less supermarkets, automated micro markets, Just Walk Out, and Grab'n'Go, container boxes, mini/micro stores, digital self-service stores. These container boxes or small stores often stock fewer than one thousand goods and provide clients with the essential assortment necessary to meet their day-to-day needs. Either they are put in high-traffic areas such as train stations, petrol stations, hospitals, or universities, or they are put in rural areas that do not have any local suppliers. They are computerised and unmanned, which means that

humans are not responsible for their operation. There is no personnel at all, thus there are no waiters or cashiers.

One of the example of a well-known convenience store that implemented AI fully are Amazon Go. Amazon Go is a smart convenience store. Since 2017, customers in the United States have been able to buy things without being checked out by a cashier or via a self-checkout system, thanks to AI. Customers spend around 50% more in Amazon Go stores than in conventional convenience stores as a result of this (Adam Levy, 2019).

Amazon Go, a smart convenience store, is only available in the United States. Since August 2017, China has had Hema, Alibaba's new retail division. In the "supermarket + catering" business strategy, Hema combines "online + offline + logistics." Customers can order things online and have them delivered in 30 minutes with free delivery within 3 kilometres using the Hema app. Hema's offline store serves as a warehouse and distribution hub as well as a retail. Hema improved customer experience by optimising in-store layouts, designing the dining space on the supermarket's edge area to provide customers with a calm dining atmosphere, and improving service quality by offering detailed information about each product on the app (Shuyuan Zhang and Hao Wei, 2018).

In Malaysia, there is a pilot convenience store known as BingoBox that does not employ any workers. However, the self-checkout system is necessary for both establishments.. The initial objective of this project is to gain an understanding of the perception held by customers in Malaysia regarding BingoBox technology. The second objective is to gain an understanding of the challenges or barriers associated with using unmanned stores like BingoBox in Kuala Lumpur, Malaysia.

1.1.1 TECHNOLOGY

A store that does not have a checkout line is known as an unmanned store or widely known as cashier-less store. This type of store gives consumers the ability to go in, shop, and then leave without having to wait in line to pay for their purchases (Mobidev, 2022). Using a combination of software with artificial intelligence and sensors and devices connected to the internet of things, this procedure has been totally automated. It's not a new trend in the retail industry to use cameras powered by AI. For instance, similar technologies are utilised in the

investigation of theft and fraud. On the other hand, the implementation of artificial intelligence in the cashierless store concept takes things to an entirely new level.

It is necessary for Internet of Things (IoT) devices and computer vision software to work together for cashier less technology to be implemented in a store so that it is secure, productive, and simple to use. Customers may stroll in, get what they want, and walk out without any hassles because to this mix. It would appear that the future of the retail industry would be one in which almost no interaction with a human being will be required in order to make a purchase. Technology is working overtime behind the scenes to ensure that every transaction is logged and nothing is taken.

A cashierless business may appear to be a mystery; yet, the concept behind it is actually quite straightforward. The only difference from making a purchase on the internet is that when you're done, you actually have physical products in your possession. The cashierless technology utilises computer vision, deep learning, Internet of Things (IoT), and Big Data analytics in order to deliver a shopping experience that is devoid of humans.

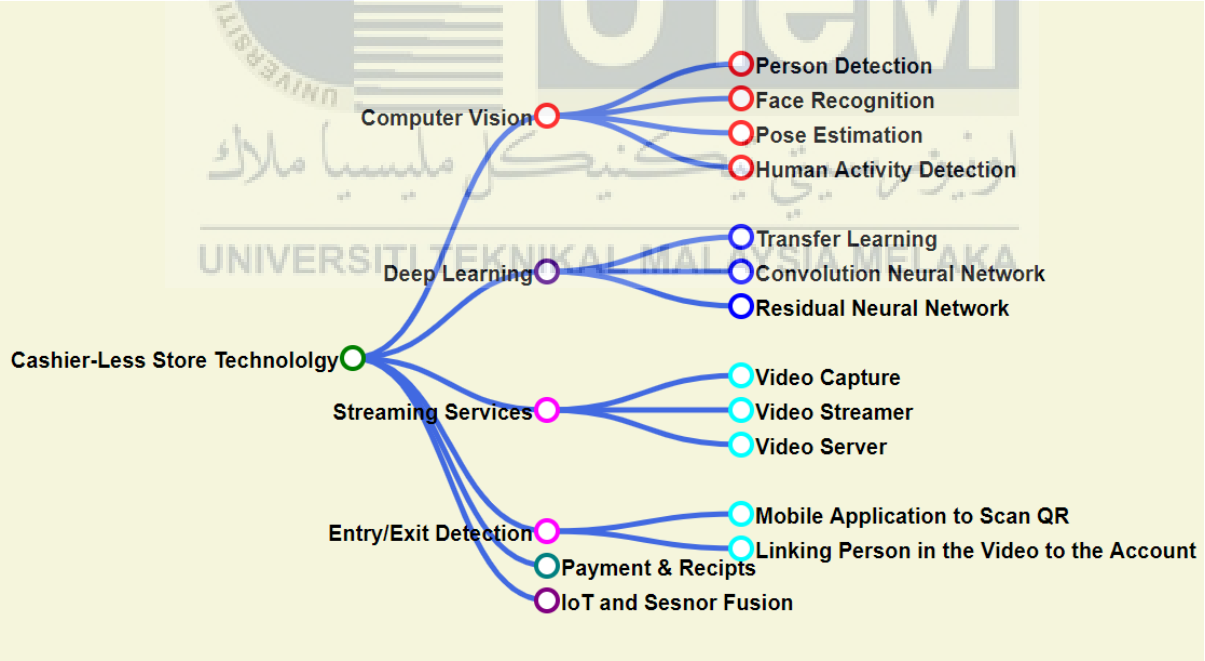

Figure 1.1: Cashierless Technology

Source: Google Image, 2022

1.1.2 UNMANNED STORE

The unmanned store as a service and cost-cutting solution could not be more contradictory. Personnel ready to answer clients' inquiries, show them the route, open an extra cash register, or retrieve things for them is one of the most significant spearheads for service. However, existing workers may not be able to meet all service needs, and in some circumstances, an unmanned store may be the best option. The unmanned retail container is an important tool in an unstaffed retail business; yet, the classic unmanned container has a high rate of commodity loss and is inconvenient for goods administration (Licheng, 2018). The use of RFID technology in an intelligent container is a smart option, but the late operation expenses are too expensive. Some intelligent containers that use gravity sensing can detect the commodity being transported, but they can't tell what the client is taking. In 2016, Amazon demonstrated its automated Go grocery store concept, which uses machine vision to track the things that customers pick up.

Unmanned retail services utilise technologies such as artificial intelligence, big data, and the internet to provide customers with an experience that is specific to their needs. As a result of dynamic recognition, certain unmanned enterprises are now able to capture the movements of customers in real time and match them to specific products, which represents a significant step forward in terms of technology (Yining, 2022). The camera is able to collect and track all of the activities that customers are engaged in while in the store thanks to the self-service detection and tracking system. This enables the store to generate a set of analysis systems based on user behaviour and provide more personalised services and experiences.

These "smart stores" can be found in both the United States and China and are a successful combination of technological advancement and market potential. Despite this, the number of successful instances is far fewer than anticipated (Yining, 2022). The problem is that the industry of unmanned shops is still in its infancy in terms of technological investigation and understanding of user experience. This presents a challenge. The unmanned retailing technology is distinct from standard self-service technologies in the sense that the entirety of the shopping experience is reliant on the first stage of development of more advanced technologies like geofencing and biometric authentication. The issues of stock replenishment, the prevention of theft, and the protection of personal information are examples of technical obstacles that need to be solved. Customers are dissatisfied because there are not enough support services, and there is not enough synergy between interactive and personalised services.

As a result, customers are reluctant to use technology, which slows the expansion of unstaffed commerce (Park,2022)

Instead than concentrating on the shopping habits of consumers, smart technology is more concerned with how people utilise technology (Chang and Chen, 2020). Few studies have focused on the role of consumers as active participants in the market. Although studies have been done on how customers react to self-service technologies, not nearly enough research has been done on how users experience new technological advances in stores (Bulmer et al., 2018).

In their study on the acceptance and resistance of smart technologies in the retail business, Roy et al. (2018) found that perceived innovative attributes such as utility and complexity indirectly influenced attitude. Chang and Chen (2020) investigated the moderating role of technology readiness in identifying utilitarian and hedonistic incentives that influence consumers' desire to shop in an unmanned grocery store. Specifically, the researchers were interested in determining which incentives are more influential on consumers' desire to shop in an unmanned grocery store.

Figure 1.2: Amazon Go

Source: Google Image, 2022

1.1.3 NATIONAL 4TH INDUSTRIAL REVOULUTION.

4IR refers to the disruptive revolution of industries brought about by the deployment of emerging technologies (Economic Planning Unit, 2021). It is characterised by emerging technologies that are combining the physical, digital, and biological worlds, thereby influencing all disciplines, industries, and the economy. For example, bioprinting uses a digital file (digital) to print an object, such as an organ, with cells and biomaterials (physical) (biological).

The Fourth Industrial Revolution (4IR) and the digital economy are interwoven and reinforce one another. Digitalization makes it possible to produce technology applications and inventions that are more complicated than ever before, as well as to introduce new business models across all sectors of the economy. The quickening of the growth of the digital economy will be a direct result of the widespread implementation of 4IR technology. The National 4IR Policy is a comprehensive national policy that encourages coherence in modifying the socioeconomic development of the nation through the ethical use of 4IR technologies. This policy was established to fulfil the goals outlined in the National 4IR Strategy. This is made possible by the application of technologies known as 4IR. It contributes to the implementation of national development plans such as the Twelfth Malaysia Plan (RMKe-12) and the Wawasan Kemakmuran Bersama 2030. (WKB 2030).

In addition to this, it acts as a supplement to the Malaysia Digital Economy Blueprint in the process of propelling the expansion of the digital economy. The policy lays out the primary areas of concentration that will have an effect on the rakyat, businesses, and the government in order to capitalise on potential growth possibilities and to manage potential dangers that may be caused by 4IR.

In order to keep up with the rapid advancement of technology and to create the groundwork for the Fourth Industrial Revolution (4IR), Malaysia has made significant financial investments. When it comes to embracing 4IR, Malaysia runs across a few problems and obstacles, such as a shortage of talent that is prepared for it, an innovation-led attitude that isn't strong enough, and a deficiency in quality fundamental infrastructure. Moving forward, the country requires a clear governance structure and implementation framework to roll out a whole-of-nation approach to push the 4IR goal. This can only be accomplished if they have these two things in place.

The National 4IR Policy will continue to improve Malaysia's economic, social, and environmental well-being, and it will put the country in a strong position to compete favourably in the decades to come. This will be possible thanks to the nation's commitment to pursuing four types of innovation simultaneously. The Policy will ensure that the nation is headed in the direction of sustainable economic growth.

In order to improve the rakyat's quality of life and welfare, the National 4IR Policy takes a person-oriented approach. This strategy gives individuals the ability to imagine their future way of life and to make use of technology in order to realise their goals in a manner that is respectful to humanistic and societal values as well as cultural heritage.

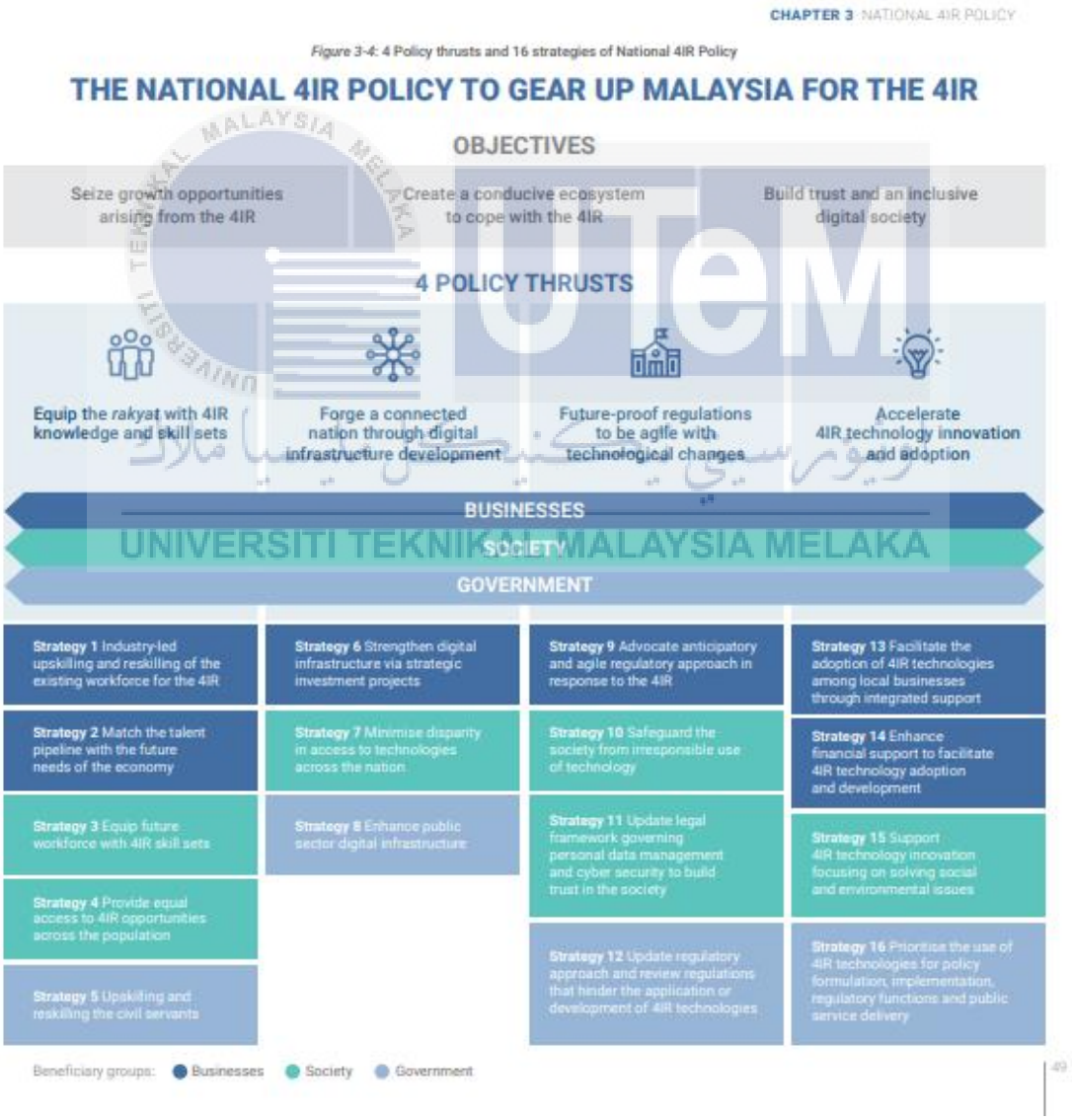

Figure 1.3: The National 4IR Policy to Gear Up for The 4IR.

Source: Economic Planning Unit, Prime Minister's Department, 2021

1.1.4 TWELFTH MALAYSIA PLAN

The Twelfth Malaysia Plan, also known as the 12th Malaysia Plan and abbreviated as "RMK-12," is a comprehensive blueprint that was prepared by the Economic Planning Unit (EPU) of the Prime Minister's Department (PMO) and the Ministry of Finance. Other names for this plan include the 12th Malaysia Plan. There are a few different titles for this proposal, including the Twelfth Malaysia Plan and the Twelve Malaysia Plan. There are a few names for this proposal, including the Twelfth Malaysia Plan and the Twelfth Malaysia Plan. This book is among the several available. The plan is a continuation of the 11th Malaysia Plan and gives a clear strategic direction for distributing the national budget from 2021 to 2025 for all sectors of the Malaysian economy. The plan was created in Malaysia. In addition to that, the plan is a continuation of the 10th Malaysia Plan that was previously implemented.

Because of developments in technology and ongoing shifts in the global economy, it is imperative that the nation adopt a strategy that is both more flexible and proactive in order to transition to an economy that is heavily dependent on advanced technologies. The Fourth Industrial Revolution (4IR), which is characterised by an acceleration of the process of digitalization and the introduction of new technologies, is having an effect on human life that is unprecedented in scope. During the Eleventh Plan, initiatives were carried out to speed up the adoption of new technologies and innovations, as well as the provision of high-quality infrastructure to support the expansion of the economy.

Nevertheless, there are still obstacles to overcome in order to fully embrace digitalization. These obstacles include a lack of digital infrastructure, fragmented governance, limited capacity and capability, and an inability to afford access to digital services. The slow expansion of the digital economy and the widening of the digital divide are both a direct result of the obstacles that have been presented. The slow acceptance of new technologies, lack of investment in research, development, commercialization, and innovation (R&D&C&I), and a talent gap have all slowed down the process of modernising the economy. It is also necessary to manage the introduction of disruptive technologies in order to make the most of the potential economic benefits while simultaneously protecting the interests of the rakyat.

The digital industry isn't as big as it could be because local companies don't have enough experience or aren't ready to go global. There isn't a strong digital global presence because people don't understand how to reach global markets and can't change and localise content for foreign markets they want to reach. Malaysian companies also had trouble getting

into the international market because they weren't motivated to do so, their products and services weren't well-known, and their products weren't very appealing. Also, local digital solution providers can't scale up, especially when it comes to cloud computing services.

Because of this, they can't meet domestic demand and compete with global players, especially when it comes to higher-tech digital services. Because not enough money was put into cable landing stations, fixed broadband wasn't widely available to meet the growing demand for high-speed broadband, especially from data centres.

1.2 PROBLEM STATEMENT

Unmanned store are new and have been introduced to consumers widely on 2018. The grocery store sector is currently experiencing an up and coming trend that involves smaller stores that are unattended 24 hours a day, seven days a week. Container boxes, mini- or microstores, digital self-service stores, cashierless supermarkets, and automated micromarkets are all names for the same type of retail establishment. Just Walk Out, Grab'n'Go falls under the same roof which is a store that works without the help and aids from manpower. Eventhough this technology are widely spread especially in the western part of the world, in developing countries, this is a relatively new and not that widely known among them (Chi wang, 2021) The potential for profit that may be made through innovation in terms of increased revenue, increased employment, and overall economic expansion is enormous. According to a recent report that was released by the World Bank today, ironically, emerging countries do not do much of a surprise when it comes to the experience of established countries to improve their products, technologies, and business processes. According to the findings of the report, lower levels of technology use in developing countries are a "rational response" on the part of businesses to the numerous constraints they face, such as barriers to raising physical and human capital, low management capabilities, and weak government capacity (World Bank, 2017) Uses of technology like electric wallet or e wallet also didn’t see any significance change until pandemic COVID-19 starts hitting globally where people are encouraged to go cashless (World Bank, 2017)

There are a lot of research has been done on looking into the customer perception on new techonology in unmmaed store. Customers today may perceive unmanned stores to be safer locations to visit if social distancing and contactless standards are included into operations (RIA, 2021). These stores rely on various automation and technology including artificial

intelligence (AI), QR code authentication, and intelligent video cameras to operate, whether they are totally or partially unmanned. In order to provide secure retail experiences for customers, these technologies will be crucial in supporting self-checkout, movement tracking, security, and other vital unmanned store functions (Regina Shang, 2021) However, in Malaysia, research on customer perception has not being tap or only little research had been done especially on BingoBox because it is still a new thing. Similar reserach have been done in the form of e-payment technology. The phenomena of e-commerce has had a significant impact on the manner in which payments are made in modern times. According to Sumanjeet (2009), this payment instrument has gained their popularity because it has been facilitated by the growth of the internet. This is because traditional payment systems are unable to effectively fulfil many cases, and as a result, electronic commerce (e-commerce) has created new financial needs for it.

Every new technology that have been introduced to consumer must face some resistance from people that did not want or feel reluctant to use it. It's possible that retailers believe new technology is the way of the future. Many customers assert that they wish to include technology into their shopping experiences, but when it is really implemented, they are sluggish to adopt it (Blake Morgan, 2021) Guo et al. (2020) examine the benefits and drawbacks of utilising a variety of customer-behavior recognition technologies in real-world settings. The development of unmanned stores is met with a number of problems and unresolved issues, some of which include noise interference, data redundancy and energy usage, multi-person identification, and sophisticated behaviour recognition. With the opening of BingoBox and its lukewarm acceptance from the consumer, there must be few barriers that leads to this. It could come from the amount of advertisement for this store. Consumer intention to learn about BingoBox technology could also leads towards the barriers.

Therefore, in this research we will be looking into the perception and barriers of the retail customer in using bingobox. What do they perceived the technology is and what could be the barriers that lead towards them using this technology.

1.3 RESEARCH QUESTION

Since this research are developed to better understand the perception and barriers towards unmanned store in Malaysia, the research question that has been gathered are:

I. What are customer's perception on BingoBox Technology after shopping there?
II. What are the barriers of BingoBox store that leads towards customer's intention to use them?

1.4 RESEARCH OBJECTIVE

The general purpose on why this research being done in the first place is to explore the perception and barriers toward BingoBox technology in Malaysia. Hence, the objective of this study are to:

I. To identify how customer's perception based on their shopping expectations via BingoBox store.
II. To investigate the barriers of BingoBox store that leads towards customer's intention to use them

1.5 SCOPE OF STUDY

The main focus of this research is to know more about customer that came across or even heard about unnamed store, Bingobox. This research would be conduct using a qualitative method where researcher picks few of the informant and interviewing them in various manners regarding their perceptions on their shopping expectation via unmanned store technology and what they think could be the barriers for them to use the unmanned store on a daily basis. Since BingoBox are located at Shell on Jalan Tun Razak, Kuala Lumpur, informant that will be interview are those who resides or work in Kuala Lumpur and Selangor.

To support this study, researcher also used Technology Acceptance Model (TAM) and few of secondary sources (i.e. books, articles, and e-journals) to gain the data that will help in completing this study. Plus, this study is also shown on how the customer perception and barriers impacting customer's intention in using the unmanned store, Bingobox.

This study enables the researcher to discover and give further understanding the barriers that leads towards their intention in using unmanned store; BingoBox.

1.6 SIGNIFICANT OF STUDY

This study's findings will further reveal what does customer perception towards unmanned store technology; BingoBox in Malaysia and what are the barriers that leads towards customer intention to use it. The findings would be of major importance for all of future entrepreneur who are interested in opening unmanned store of their own in the future. Through the finding they can know more about the technology through cutomer's perspective and taking those cons and try to fix it. This study will also provide more information for BingoBox themselves on what customer thought of their technology and from there they can invent and invest into a more user friendly technology that can be used by all. Data gathered will also help those who want to study about unmanned technology and gain information and knowledge through it.

1.7 LIMITATION OF STUDY

This research study has several potential limitations. The first is being the limited access for data. Since unmanned store are relatively new subject here in Malaysia, researcher found that there are relatively small number of studies being done. This become one of the biggest obstacle for researcher to find more information that are reliable or in other way have what it takes to put in this studies. Since, this studies are being done in midst of pandemic COVID-19, some of the interview would be done via online platform. Conducting interview via online platform could not give chance for researcher to try and reading their body language or the respondents and match their responses. Sample size are also one of the limitation since a studies need to find big enough respondent in order to come out with more accurate results. Using qualitative research also give a drawback as they are time-consuming process. Another problem is that the interpretations are limited. Personal and knowledge influence observations and conclusions.

1.8 SUMMARY

Each potential research topic will initially begin with an overview of the issue, followed by research into the subject's background. This section provides a synopsis of the overall research outline. The research that went into the backdrop of this study was on a quick overview of the use of IoT and AI in the retail business. This review focused specifically on the technology

behind unmanned stores. In addition to that, it includes a concise assessment of the state of the retail industry during COVID-19 as well as a few of the rules that are in place to encourage the adoption of technology in companies. After that, this research will clarify the research questions to be addressed as well as the goals and problems with the research. In addition, an investigation into the breadth and importance of the research will be carried out. The primary focus of this section is on the study objectives and questions that will be asked. Chapter 2 will be devoting its time to discussing all of these significant sub-sectors.

CHAPTER 2

LITERATURE REVIEW

2.0 INTRODUCTION

This chapter provides a review of secondary data acquired in support of a research at BingoBox in Kuala Lumpur, on the perception and barriers towards unmanned store in Kuala Lumpur. The literature review included references to secondary data in order to improve understanding. The secondary data used, such as journals, articles, and books, will be discussed. The IOT and AI technology will be discussed first in this chapter. Later we will be looking at history of Malaysia's convenience store. Also in this segment, Diffusion of IOT and AI in convenience store, the definition of unmanned store and also the example of unmanned store. Furthermore, this chapter discuss about BingoBox, technology acceptance and technology readiness. Finally, this chapter ends with a conceptual framework that demonstrates the researcher's ideas about how to define the barriers involved.

2.1 PANDEMIC COVID-19

On March 11, 2020, the World Health Organization (WHO) declared that COVID-19 is a global pandemic, which indicates a major global spread of infectious diseases. This news came as a result of the global spread of infectious diseases (World Health Organization, 2020). During that time period, there were 118,000 confirmed cases of coronavirus, and the disease had spread to 110 nations. The sickness was initially reported in China in January, making it the first country to record an outbreak of the ailment, which continued to spread throughout China. In addition to South Korea and Iran, Italy was another nation that reported an outbreak during the month of February. In a relatively short amount of time, the virus has spread to every continent as well as more than 177 countries.

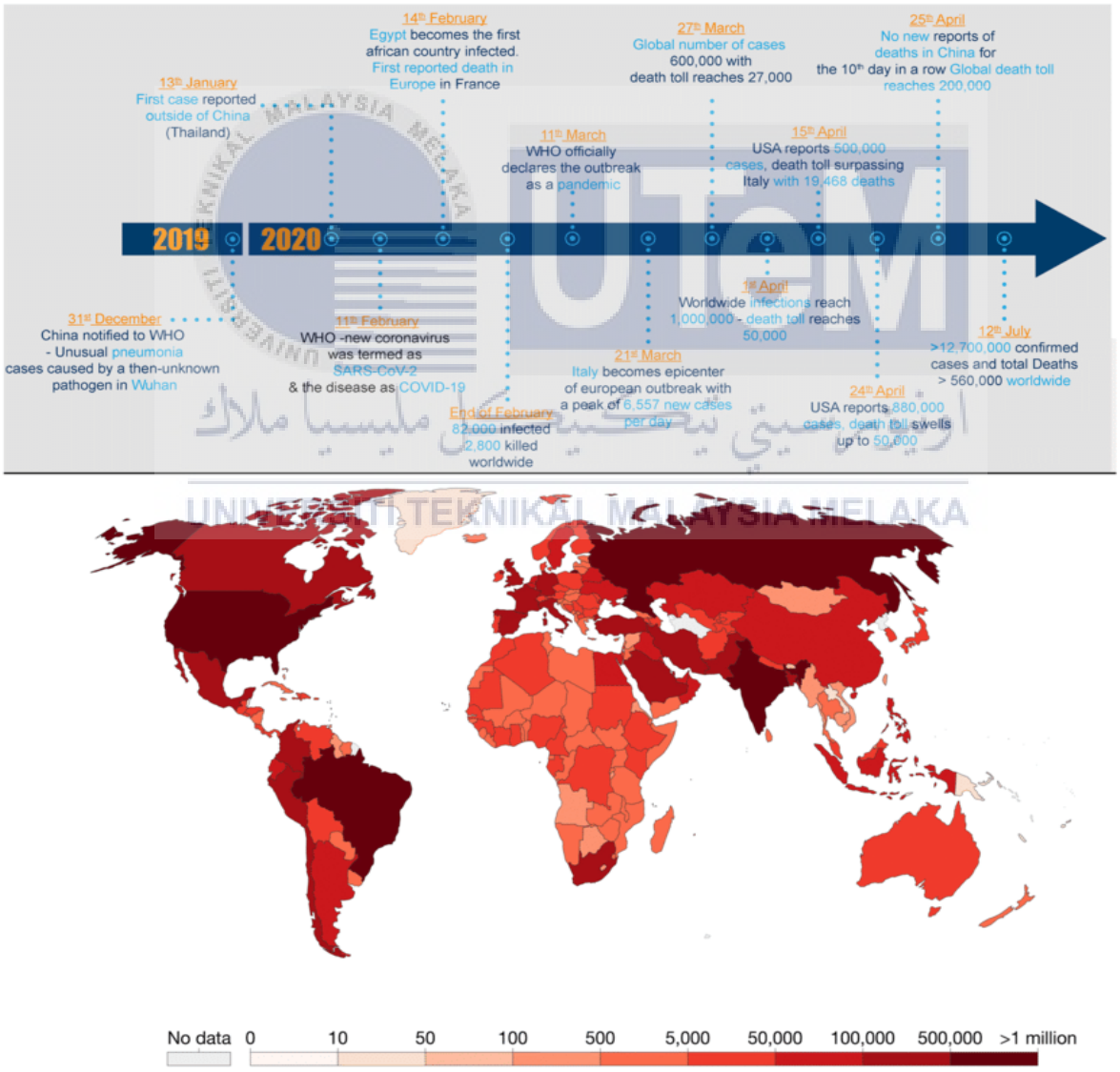

Figure 2.1: Timeline of Covid-19 Pandemic

Source: Research Gate, 2020

Coronavirus COVID-19 has had an impact on day-to-day activities and has slowed down the economy on a global scale. As a result of the pandemic, thousands of individuals have fallen ill with the sickness or have died as a direct consequence of the epidemic's rapid spread. This virus most common symptoms include fever, a cold, cough, bone pain, and respiratory issues, all of which can eventually lead to pneumonia. Because this is a brand-new viral illness that has never before been seen in humans, there is no vaccine available for it at this moment. As a result, the emphasis is placed on adopting severe precautions such as social confinement, intensive hygiene protocols (such as frequent hand washing, avoiding face-to-face interactions, etc.), wearing masks, and so on (Haleem, 2020). The virus moves from region to region at an exponential rate. The assembly of individuals in an effort to disrupt the exponential growth curve is prohibited by the states. In order to stop the spread of this terrible sickness, which is highly contagious, many nations have quarantined their populations and locked their citizens in their homes.

COVID-19 has had an effect on the source of supplies as well as the impact on the economy of the entire world. There are regulations in place that prevent citizens of one country from entering another. According to Javaid (2020), when these people were tested while they were travelling, a number of them turned out to have positive results, particularly when they went to other countries. The identification of instances that were impacted by COVID-19 remained a primary concern for all governments, health organisations, and other authorities. The provision of high-quality healthcare in the modern era is fraught with a myriad of challenges for those working in the field.

The virus that causes COVID-19 is very contagious and can rapidly transmitted from one person to another through direct physical contact. Because of this, it is vital that people limit the ways in which they interact closely with one another (Cross, 2020). Staying at home as much as possible and avoiding crowded and challenging public locations is an efficient strategy to achieve this goal. This will help keep a safe distance between individuals. In many areas, the number of individuals who are permitted to enter establishments like restaurants and bars as well as attend events and meetings is capped. Because of the rise of online learning, many educational institutions, including colleges, have become less intimate (Cross, 2020). When there is a possibility of having close contact with other people, such as when going to an important trip to the grocery store or gas station, the Centers for Disease Control and Prevention (CDC) recommends wearing a face mask that covers your mouth and nose and remaining at

least 6 feet away from other people. If you intend to attend a rally, you should wear a face mask and maintain a distance of at least six feet from the other attendees.

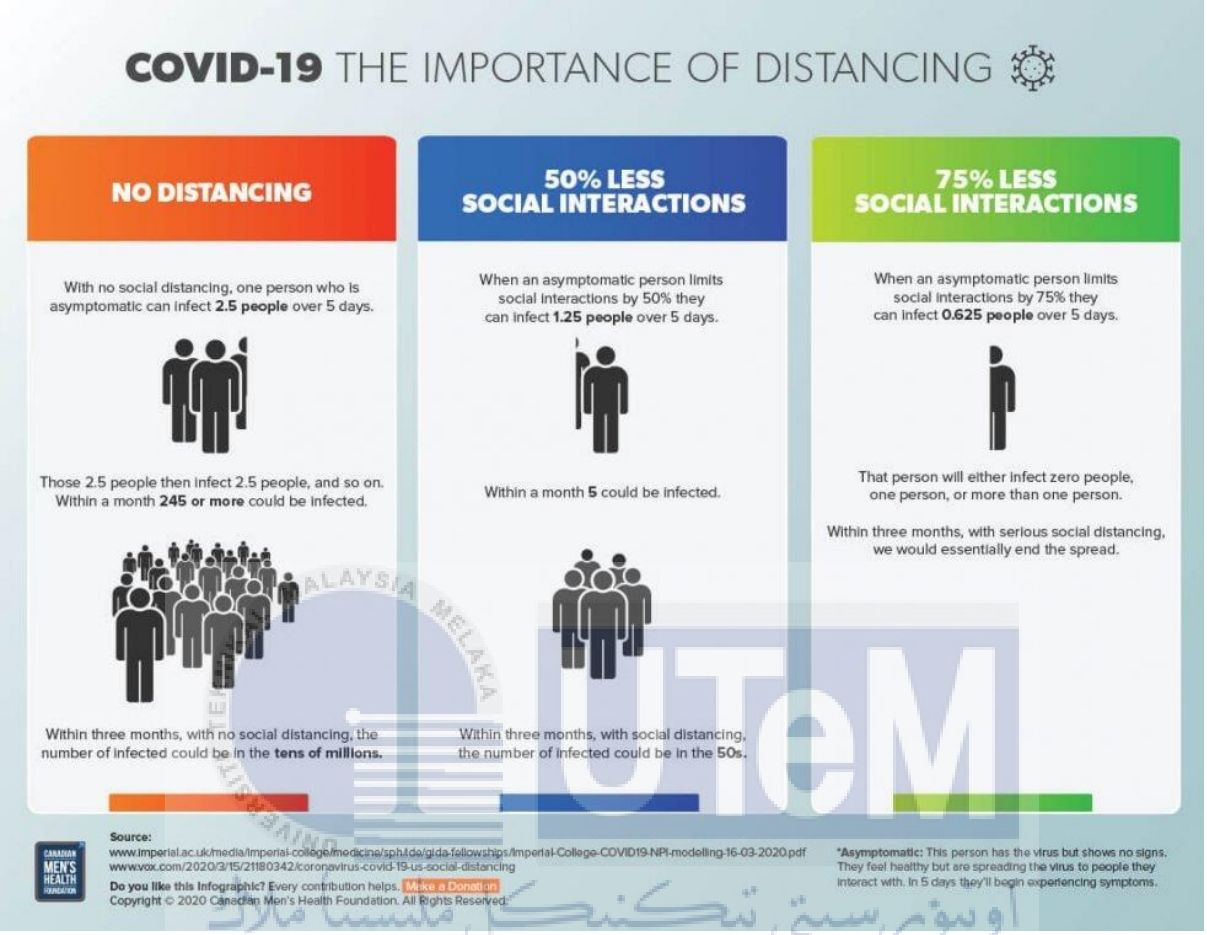

Figure 2.2: The Importance of Distancing

Source: Men's Health Foundation, 2020

Due to contactless initiative that needed to be done during covid-19, many stores starts implementing cashless buying experience for customer in order to avoid virus COVID-19 from spreading.

2.1.1 RETAILERS DURING COVID-19

A frightening characteristic that occurred during the beginning of the Covid-19 outbreak was the image of people shopping in a panic and waiting in line to enter the mall so that they could buy groceries (New Straits Times, 2020). People are forced to navigate packed

payment lines as a result of panic shopping, which puts strain on the shopkeepers who work in supermarkets (Lufkin, 2020). Long lineups at the grocery store increase the amount of time spent in crowded public settings, which decreases the ability to physically distance oneself from other people and raises the likelihood of contracting a contagious disease.

During the pandemic, many firms were forced to switch to digital operations. While some customers have the option of shopping for groceries online, the vast majority of consumers still prefer to physically purchase their food at brick-and-mortar establishments. In point of fact, over the past several years, retail technology has started to offer self-contained and automated payments in an effort to cut down on friction and labour (May Ting, 2021). The service is already offered at a number of retail establishments in Penang, including IKEA, Mercato, and Lotus's, which was once known as Tesco. Before leaving the store, customers who choose this method of checkout are required to scan their purchases and make payments using their credit cards.

The idea of cashless businesses is a relatively new one in the retail industry, but it is gaining popularity around the world. It provides a hassle-free shopping experience, which saves both time and personnel. Additionally, it reduces the amount of touch between people, which helps lower the danger of virus transmission. A solution that wraps the capabilities of digital commerce on existing space with minimal downtime for enterprises is cashless technology driven by artificial intelligence and entirely automated (Trigo, 2021).

It appears that people' shopping patterns have been irrevocably altered as a result of the pandemic. Given the prevalence of e-commerce, it is clear that traditional retail establishments must adapt to meet the evolving expectations of their customers about ease. The idea of a business that does not accept cash is a groundbreaking development that was made possible by the Figital experience (physical and digital). The term "phygital" is now commonly used to refer to a technology that bridges the gap between the digital and the physical worlds with the intention of giving consumers with an experience that is more consistent and less jarring (Petro, 2021).

This is where the diffusion of both Internet of things (IoT) and Artificial Inteligence plays it role in easing the process of buying things contactless in retail industry.

2.2 RETAIL INDUSTRY ACTIVITIES IN MALAYSIA

Retailing is a part of the commercial sector that has made a substantial contribution to Malaysia's GDP (Nurwati,2003). Retailing on various scales coexists side by side, as it does in many Southeast Asian countries. This is especially true in densely populated places, where small-scale and large-scale retailing coexist. Despite the advancement of hypermarkets, small-scale commerce in the form of shophouses continues to develop in the states of Selangor and Johor. In Federal Territory Kuala Lumpur, on the other hand, the retail tendency appears to be shifting away from shophouses and toward large-scale commerce such as supermarkets and hypermarkets. In recent years, shopping malls and hypermarkets have overrun shophouses in F.T. Kuala Lumpur.

Over the last decade, the development of global merchants, particularly in food shopping, has transformed the retail landscape in Malaysia (R.M Roslin, 2002). Consumers now have the option of shopping at large retail venues such as hypermarkets, warehouse clubs, and superstores, rather than grocery retail formats such as supermarkets, micro markets, and night markets, which previously dominated the Malaysian retail scene. Malaysia's retail climate has changed dramatically throughout the years. The retail environment has been transformed, with new facilities ranging from supermarkets and superstores to retail warehouses and convenience stores displacing conventional shophouses. The tiny retailer, on the other hand, is not completely out of luck. Although it is losing ground in the city, the tiny retailer is still a viable option in the suburbs.

2.2.1 DIFUSSION OF IOT AND AI IN RETAIL INDUSTRY.

According to Ogawa, 2017, Consumer lifestyles have been diversified as a result of technological advancements, resulting in significant changes in client purchase behaviour. On the other hand, the continued decline in the birthrate and the ageing of the population has resulted in a labour shortage, which is currently occupying store management. By the year 2050, it is estimated that twice the present available energy supply will be required to maintain our lifestyles globally. Ogawa (2017) also added that , it is believed that coordination of supply and demand will be more important than ever at that time. In instance, it has become a significant issue since 1/3 of the food produced worldwide is wasted, despite the fact that global food consumption is continually increasing. France has passed legislation prohibiting major

retailers from discarding unsold items as garbage. It is not just important in terms of food, but it is also necessary to make better use of our other limited resources.

These days, a growing number of businesses and customers are concerned about how easy it is to make purchases, as well as how efficient the process is. The development of the Internet of Things (IoT) and artificial intelligence (AI), along with the proliferation of smartphones and mobile payment systems, contributed to the rise in popularity of unstaffed retail sales (Lizheng, 2018). The Internet of Things (IoT) is an expanding and pervasive concept that has had an impact on many facets of human existence. Its technology enables smart sensors and hardware to connect to the internet (Shih-Ching, 2018). Customers are able to finish the entirety of the purchasing process by themselves through the use of self-service, and the consumption process is inherently seamless. The Internet of Things (IoT) has enabled a new industry to emerge: retail purchasing. These IoT-based services provide customers with a variety of interactive shopping options.

2.3 INTERNET OF THINGS (IOT) AND ARTIFICIAL INTTELIGENCE (AI)

The term "internet of things" (IoT) refers to the growing number of electronic devices that aren't considered to be regular pieces of computing equipment but are still connected to the internet in order to send or receive information or instructions. Consider the following, just some of the many things that fall under this category: Internet-connected "smart" versions of traditional appliances such as refrigerators and light bulbs; devices such as digital assistants in the style of Alexa that could only exist in a world that had access to the internet; internet-enabled sensors that are transforming factories, healthcare facilities, transportation hubs, and agricultural operations.

2.3.1 DEFINITION OF IOT AND AI

According to Alexander, 2021, the internet of things, also known as IoT, is a network of interconnected computing devices, mechanical and digital machinery, items, animals, and people with the ability to transfer data without the need for human-to-human or human-interaction with a computer interaction. This network also includes unique identifiers (UIDs) for each of its members. Things in the internet of things include, but are not limited to, a person who has a heart monitor implant, a farm animal with a biocip transponder, a car with a built-in

sensor to alert the driver when tyre pressure is low, and any natural or man-made object that can be assigned Internet Protocol (IP) and can transfer data over a network.

Connecting physical objects to the internet, as well as data processing and analytics, is what the Internet of Things (IoT) does. Users will be able to engage with a global information network without making use of a keyboard or screen; a significant number of the products and appliances that users use on a daily basis will be able to receive orders from the network with minimal participation from humans. Connecting physical objects to the internet, as well as data processing and analytics, is what the Internet of Things (IoT) does. Users will be able to engage with a global information network without making use of a keyboard or screen; a significant number of the products and appliances that users use on a daily basis will be able to receive orders from the network with minimal participation from humans.

Josh, 2020, said In the enterprise, IoT can deliver the same efficiency for physical manufacturing and distribution that the internet has long provided for intellectual work. Hundreds of millions, if not billions, of embedded internet-enabled sensors throughout the world give a vast amount of data that organisations can use to gather information about the safety of their operations, track assets, and automate activities. Researchers can also use the Internet of Things to gather data on people's preferences and behaviours, albeit this has significant privacy and security implications.

Figure 2.3: Internet of Things

Source: Google Image, 2022

The term "artificial intelligence" refers to any activity carried out by a machine that was traditionally regarded to require the involvement of human intelligence (Minsky and Mccarthy, 1950). To take this one step further, Artificial Intelligence (AI) is defined by Frankenfield, 2021 as a simulation of human intelligence carried out by robots that have been programmed to think and behave in a manner similar to that of humans. The concept can also be extended to any type of mechanical device that demonstrates capabilities analogous to those of the human mind, such as learning and the ability to solve problems. A trait that would be excellent for artificial intelligence would be the capacity to reason and carry out activities that have the best likelihood of reaching a given objective. The concept of computer systems being able to learn from and adapt to new data without the need for human involvement is referred to as "machine learning." Machine learning is a subset of artificial intelligence. Deep learning algorithms enable this kind of autonomous learning by ingesting enormous quantities of unstructured data, such as text, images, and video.

AI systems are able to learn from the patterns and features in the data that they analyse by integrating enormous amounts of data with advanced iterative processing methods, according to research that was published in 2021 by Colorado State University. An AI system will analyse and quantify its own performance whenever it executes a data processing cycle. This allows the system to gain new knowledge with each cycle it completes. Because it never requires a break, artificial intelligence is capable of quickly completing hundreds, thousands, or even millions of jobs, learning a tremendous lot in a short amount of time, and becoming very competent in any given job. However, in order to have a complete understanding of how AI operates, one must first grasp the idea that it is not merely a certain computer programme or application but rather an entire field of study or research. The purpose of artificial intelligence research is to develop computer systems that are able to simulate human behaviour and find solutions to difficult problems by employing cognitive processes that are analogous to those of humans. To accomplish this objective, AI systems make use of a wide number of approaches, procedures, and processes, as well as a wide array of technology.

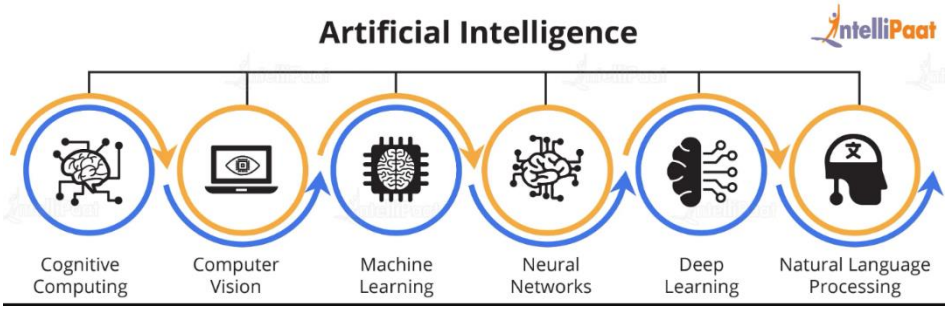

Figure 2.4: How Artificial Intelligent Works

Source: IntelliPaat, 2020

2.3.2 IOT AND AI TECHNOLOGY IN RETAIL INDUSTRY

Traditional stores have been finding it increasingly difficult to compete with online retailers in recent years, owing to the latter's lower overheads due to the lack of a physical store, allowing them to spend more money on innovation (Bradley, 2018). This is especially true in the fields of electrodomestics, fashion, and cosmetics. Despite the fact that the conventional high street is fast dwindling, there is still room for brick-and-mortar stores in cities and towns. This, however, appears to be becoming more reliant on their ability to install and sustain IoT retail systems. The emphasis will be on the customer experience within the store, with the goal of making the client's trip as personal and easy as possible.

Similarly, IoT technology has a lot of potential for online retail. Marketing techniques are poised to get more sophisticated as AI systems allow businesses to obtain in-depth knowledge of consumer buying patterns, find new target groups, and customise product adverts to each type of customer. Furthermore, both physical and online merchants can save money and time on logistics by using streamlined, smart supply chain technologies.

Smart shelves are one of the most inventive IoT tech applications for the retail supply chain. Because inventory consumes so much of an employee's time and effort, smart shelves are a game-changer because they allow firms to automate the process of keeping track of goods while also assisting in the detection of potential theft. Weight sensors and RFID (Radio Frequency Identification) tags and readers are used to scan things on these shelves, allowing them to record data on what's on show and in stock and alert management when items are running low or in the wrong location. RFID tags are also linked to readers, which aid in the

detection and prevention of in-store theft, allowing businesses to spend less money and effort on security.

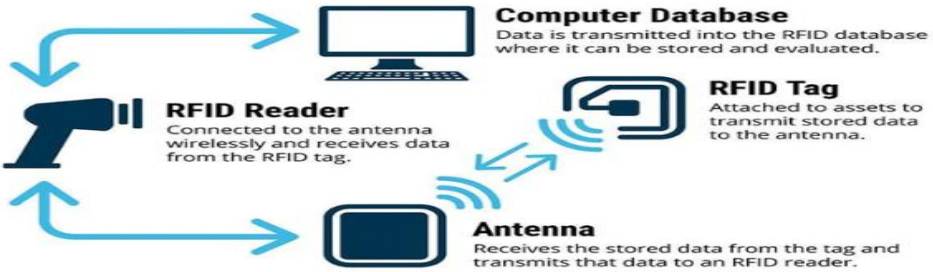

Figure 2.5: RFID tags Technology

Source: Google Image, 2022

Sensors that monitor perishable items at grocery shops and supermarkets can alert employees when a product is about to expire, notify suppliers of the need to restock inventory, and provide discounts to prevent waste using IoT technology. Furthermore, frozen products can be stored in smart freezers that regulate the temperature based on how long the freezer has been closed, how long the products have been inside, and other factors, allowing businesses to save energy while maintaining optimal product quality for customers. Smart price tags, which can be modified in real time to cut prices on promotional or low-turnover items and raise prices on things with higher demand, can also be used by businesses.

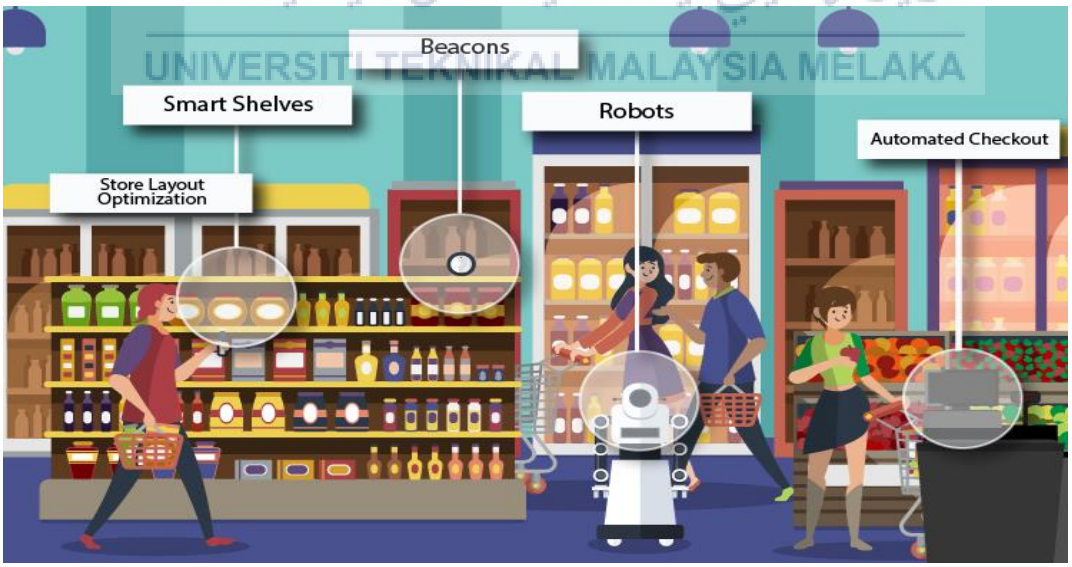

Figure 2.6: Smart Shelves in Unmanned Store

Source: Google Image, 2022

To remain competitive in the modern marketplace, businesses need to provide a level of service to clients that has never been seen before, all while cutting waste and improving operational efficiency. You are able to acquire the data, but it will take a significant amount of knowledge on your part to make sense of it all. According to Intel's research from 2020, the digital revolution in retail is much more than simply putting things together. The transformation of data into insights, which in turn direct activities that improve company results, is the primary focus. It is absolutely necessary to make use of AI in retail settings, such as machine learning and deep learning, in order to obtain these kinds of insights. This translates into excellent customer experiences, the possibility for revenue growth, rapid innovation, and smart operations for retail businesses; all of these factors help merchants stand out from the competition.

A great number of businesses have already begun to integrate AI in some facet of their operations. You can use artificial intelligence (AI) in customer relationship management (CRM) software to automate marketing processes, or you can use predictive analytics to determine which customers are most likely to buy certain products. Cloud computing allows for the storage and processing of artificial intelligence jobs that involve huge volumes of data derived from a number of sources. Examples of retail workloads that can be performed on the cloud include demand forecasting, machine learning, and online product suggestions. The use of computer vision in physical stores, which may be thought of as a form of artificial intelligence (AI) deep learning in retail, is becoming increasingly common. The ability of computer vision to "see" and analyse visual data frees up your eyes to focus on the tasks that require them the most (Intel, 2020). Additionally, it clears the path for the development of new retail applications in areas such as customer experience, demand forecasting, inventory management, and many others.

Figure 2.7: AVA Smooth Shop

Source: Google Image, 2022

2.4 BingoBox

Self-service convenience stores are sold under the BingoBox brand name. Beijing Bin Song Network Technology Co. is the company that was responsible for developing BingoBox. Chen Ziling established the company back in 2016. The main office for BingoBox can be found in Zhangshan, which is situated in the province of Guangdong in China. As of the month of April 2018, BingoBox was already active in 30 cities throughout China. In addition to these countries, it has expanded into Malaysia, South Korea, and Taiwan, and it has also started to expand into Japan.

BingoBox is a retailer that operates over 500 flat pack construction stores and has grown its business outside its native markets to Taiwan, South Korea, and Malaysia, with store debuts planned for Japan and Australia. The average size of a BingoBox store is only 160 square feet, which is significantly smaller than the size of a 7-Eleven or Tesco Express store, which are approximately 1,400 and 2,300 square feet respectively. This makes it easier to locate potential sites, reduces overhead costs, and enables high sales densities.

Amazon Go may receive press attention in 2018, which could raise awareness of cashier-free convenience store retail. However, Amazon Go's Chinese competitor, BingoBox, has dominated rapid replication with over 500 stores and achieved a strong position in untapped, high-margin channels. BingoBox has only ten stores trading to date, while Amazon Go has over 500 stores. Even though there are a few obvious flaws in the BingoBox concept, such as the fact that it only offers a limited selection, that scanning and payment procedures are still necessary, and that its success is contingent on users' willingness to adopt new technology, it is essential for traditional facility retailers to recognise the potential risks posed by the concept as it expands into new markets. posing BingoBox.

BingoBox has responded to requests for efficient and seamless shopping as well as consumer willingness to use smartphone payment methods. However, retailers need to expand their product offerings beyond c. 200 lines across the core categories of confectionery, snacks, soft drinks and essential toiletries, especially in a market where convenience retail is mature and consumer expectations for choice, food service options and fresh and healthy food chains continue to increase. Working with local wholesalers or establishing wholesale relationships with already established grocery chains will make the product offers at BingoBox more competitive and boost the destination's desirability.

Figure 2.8: BingoBox Store

Source: Golden.Com, 2018

2.4.1 BINGOBOX SERVICE

BingoBox simulates the experience of shopping in a convenience store even though there are no actual personnel present. However, in the event that consumers have questions or concerns with the BingoBox service, they are able to get in touch with customer care via video conferencing devices that are located within the retail location.

Customers are required to scan a QR code before being allowed entry into the store. This code also serves the purpose of verifying the customer's identification. The only thing that the customer needs to do in order to complete the check-out procedure at the cashier's counter is to place the item that they have purchased at the counter, and the entire cost will be displayed on the screen that is available. Payment gateways accessible via mobile phones, such as Alipay and WeChat, are the only ones that can be used to complete transactions. A check will be performed by the camera at the front door to ensure that the customer has paid for all of the items in their cart before they are allowed to exit the business. In addition, the business is equipped with cameras that are capable of facial recognition, so that in the event that there is a theft, the authorities will be able to swiftly investigate and catch the perpetrator. The shop is available at all hours.

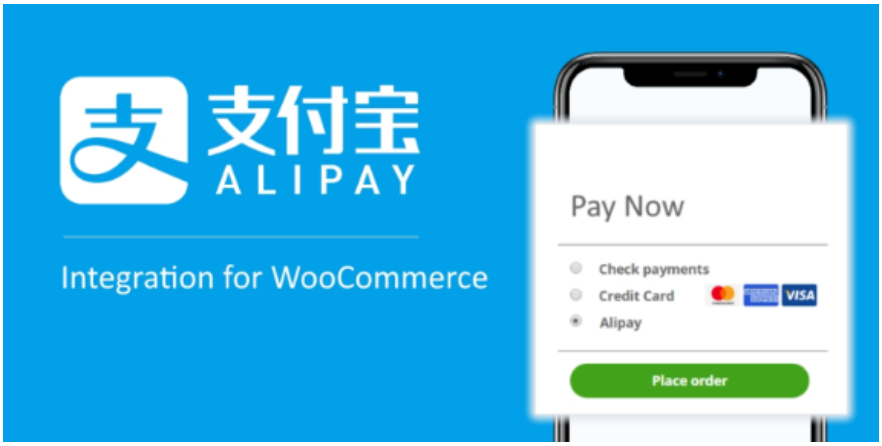

Figure 2.9: AliPay Cross-Border Payment Gateway

Source: Woo Commerce, 2020

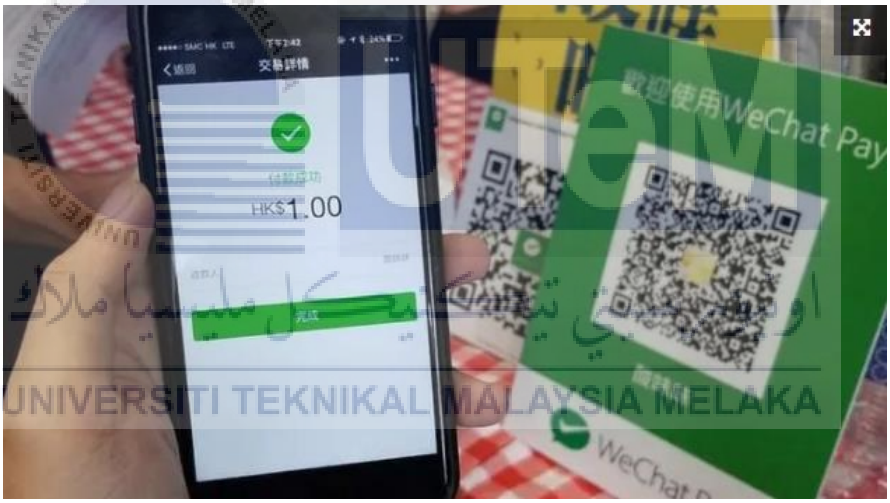

Figure 2.10: Wechat Pay

Source: Mime Asia, 2020

2.4.2 BINGOBOX TECHNOLOGY FOR ITS UNMANNED STORE

On 2017, presented its brand new artificial intelligence solution, which it calls "Fan AI." It is a smart goods shelving system as well as a new payment mechanism at checkout that is powered by image identification, facial recognition, and machine learning.

Customers may enter the store, choose things, and proceed through the check-out process using RFID with just a simple scan of their smartphones. Now, BingoBox intends to do away with RFID tags completely and scan goods using a camera that is driven by image recognition technology instead. Customers now have the ability to stack things at the check-out counter and pay with a smartphone scan using either WeChat Pay or Alipay thanks to the recently introduced system.

In addition, BingoBox has introduced today a smart retail shelf solution that comes complete with a display and a camera. While the display will present the most recent and personalised advertising messages as well as alter price tags as necessary, the camera will be able to catch customer actions and collect data accordingly. Smart Shelves are able to interface with apps that have been put on consumers' smartphones and include information about previous purchases. Retailers are able to provide customised offers to customers as they travel down an aisle by analysing their previous purchases of products that are comparable to those being offered. Smart Shelves will be able to point clients in the right direction if they use the app to generate a shopping list of items they need to purchase.

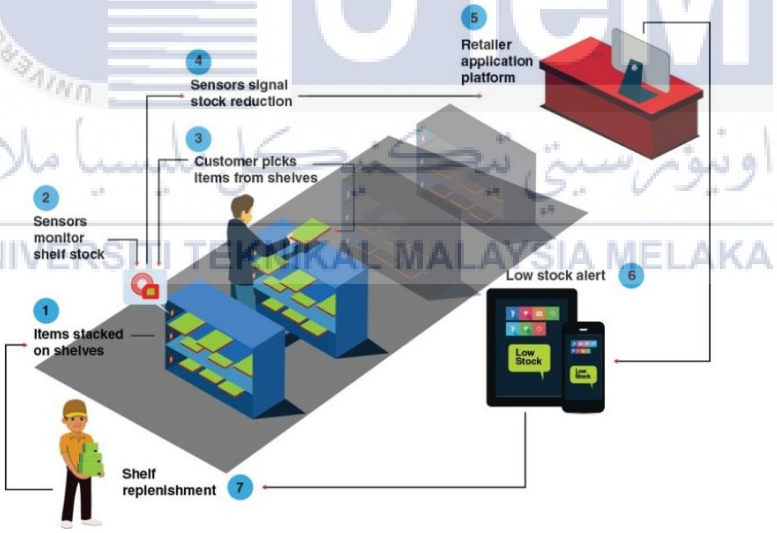

Figure 2.11: Smart Shelves System

Source: Capgemini Engineering, 2019

At the brand strategy release conference that took place today in Beijing, the founder and CEO of BingoBox, Chen Zilin, stated that "we believe item shelves should not only represent prices but serve as a communication medium with customers." "For advertising and marketing purposes, it will be a very useful instrument."

BingoBox also implementing face recognition technology in their store. According to Wang Liangqi, the Vice President of Innovation and Research for BingoBox, their accuracy Rate for image recognition has successfully reached 99%. The facial recognition systems works through:

a. Examine the Objects, and Show Your Face

When it is time to make a purchase, customers go to their individual pay kiosks, which contain various electronic gadgets such as tablets. Customers can scan products they have purchased to add them to their carts and then proceed to checkout. A growing number of retail businesses now provide digital carts, which allow customers to select merchandise from shelves and have it immediately put to their virtual shopping basket. The purchaser then presents their face for verification on the gadget after adding the item to the shopping basket.

b. Authentication

Because of advances in artificial intelligence, faces may now be identified and recognised from among the databases of millions of users. An algorithm that uses computer vision to do machine learning can locate the shopper's face throughout the full database.

c. Approval

After the authentication process has been completed successfully, face recognition devices will display payment and user data for approval.

Figure 2.12: BingoBox Facial Recognition System

Source: Tech Node, 2017

2.5 CUSTOMER PERCEPTION TOWARDS UNMANNED STORE.

What is customer perception? Customer perception is defined as "a marketing notion that incorporates a customer's view, awareness, or awareness of a company or the offerings that the firm provides." Customers will learn information about a product, process that knowledge, and generate an opinion about the product based on their interpretation of the information. This phenomenon is known as "consumer perception." Customers form an opinion of a product based on their exposure to various marketing materials, such as advertisements, promotions, customer reviews, feedback from social media platforms, etc. (Clark, 2020)

When a consumer first sees a product or obtains information about that product, the entire process of customer perception might be said to have begun. This procedure will continue until customer views about the product begin to form. The actions of a firm might be seen in a variety of ways by its target audience. Customer impression is affected by a variety of factors, including the placement of the product within the grocery store, the colour and shape of your company's logo, the advertisements you generate, and the discounts you provide.

MIC (2017) believes that the trend of unmanned store will continue to develop. Shop without any physicallaor is able to provide a service that is open twenty-four hours a day, seven days a week. This service enables customers to pick up their orders and pay for them without being limited by the passage of time. In addition to this, it can swiftly create use details, which significantly cuts down on the amount of time customers need to spend shopping. Bezos, CEO of Amazon, believes it would be beneficial for a congested city to reduce the amount of traffic that occurs during dinner times. (2018). An potential for Amazon to change the way customers shop in physical stores, which also suggests that the user's level of satisfaction with the level of use efficiency will have an effect on the user's intentions regarding use in unmanned stores.

2.6 BARRIERS TOWARDS USING UNMANNED STORE

In general, it has been argued that resistance can take on a variety of forms and can present itself on a number of different levels, depending on the type of innovation (rejection, delay, opposition). Will become-gin with, resistance can take the shape of rejection, i.e. a direct refusal to accept the product, as argued by Kleijnen et al. (2009). (2009). There is also a sort of resistance known as procrastination, which indicates that a decision on the acceptance of the

innovation is still waiting. Finally, there is opposition, which denotes a severe rejection of the innovation.

Sentiments of activity in regard to innovation (Kleijnen et al., 2009). from the point of view of the amount of resistance, innovation The user may exhibit resistance in the form of inertia (adherence to the status quo), active resistance (a negative response to innovation because it is thought to be dangerous), or strong, active resistance (a strong resistance to innovation that is perceived as unsuitable).

And as everyone are well aware, resistance of using technology such as unmanned store or in this case, BingoBox came from barriers of using it. So here are the few barriers known to lead to the uses of BingoBox.

2.6.1 Usage

Customers often resist new innovations because they are incompatible with their present workflows, practises, or routines. This is perhaps the most typical reason for such resistance or barriers. It takes a somewhat long period of development time for an innovation to obtain customer acceptability if it requires customers to change how they typically go about their daily lives (Sheth, 1998)

One example of an invention that has been greeted with resistance from certain potential consumers is carpooling. This is because carpooling demands considerable adjustments to the daily routines of its participants. As a result of having to coordinate their arrival and departure times, carpoolers are unable to take advantage of the freedom afforded by having a flexible work schedule. They are also required to make concessions on a few other fronts while they are on the road. For example, the genre of music that they listen to is no longer a matter of personal preference; the privilege of silence may have to be given up for the sake of polite conversation; and smokers may be required to grit their teeth and dare to resist the urge for nicotine. To be successful in carpooling, you need to get along well with your other passengers, be punctual, have good manners, and keep up with your personal hygiene. Therefore, there is an aversion to new ideas.

When shopping at an unmanned store, the same rules apply except with no assistance when making the purchases. Customers are accustomed to going to the actual location of the business and making their purchases at the cash register there. The counters are staffed at all

times by employees, who, right in front of us, personally handle the products being sold. When there is a change in the method of purchasing things, it is inevitable that buyers will spend a significant amount of time to become accustomed to this new method.

2.6.2 Lack of Technology Readiness and psychological behaviour

One of these challenges is a lack of technological readiness, which might result in exasperation when dealing with newly developed technologies (Parasuraman 2000). Indirectly affecting client sentiments is technology willingness, which in turn is influenced by the features of perceived innovation (Roy et al. 2018). Next, demographic factors like age and socioeconomic status are likely to act as a barrier to the adoption of new technologies (Lee and Coughlin, 2015). These factors, which could determine acceptance even more strongly than consumer innovation, are likely to act as a barrier to the adoption of new technologies (Im, Bayus, and Mason, 2003).

According to Antioco and Kleijnen (2010) and Schepers and Wetzels (2007), barriers to adoption are frequently not only functional but also psychological and cultural in nature. As a result, customers may acknowledge the advantages offered by new technology yet remain resistant to adopting it due to their attitudes toward technology. This is consistent with studies that highlights the fact that consumption is motivated not only by the functional side, but also by the playful and entertaining aspect (Holt 1995; Okada 2005).

2.6.3 Security

Difficulties that occur linked to the manner in which data is saved can be related to the management of huge volumes of data that are generated and its storage. Then, other problems concerning the manner in which 'quality' data are selected, are singled out, and priorities also develop (Lazer et al., 2014a). Second, there are problems with the mixed-media format of the data that is communicated and analysed, as well as obstacles with the infrastructure that arise from the methods that are utilised for delivery and analysis. There is a risk that technological advancement will devolve into anarchy due to the hyperconnected and hyper-accelerated innovation cycle that is currently present in the field of technology, particularly in the absence of specific and universal guidelines (Weber and Studer, 2016a). There is also the potential for security concerns to arise at the device level, which is inextricably tied to the most pressing data and privacy concerns (Palattella et al., 2016a).

When discussing the topic of security from the point of view of the Internet of Things (IoT), it is important to keep in mind that foolproof measures to thwart privacy also extend beyond the industrial scheme of things and have a significant amount of room for improvement when viewed from the perspective of society.

Online merchants are susceptible to attack from cybercriminals in a variety of ways. Phishing schemes can be rather sophisticated, and they can be used to trick unwary consumers or staff into handing over their credit card information. Attacks known as distributed denial of service (DDoS) can render the servers used by your company inoperable, making it impossible for customers to make purchases. Hacking into a physical point of sale (PoS) system is another method that cybercriminals use to target traditional businesses. Thus making unmanned store also pretty vulnerable towards cyber attacking by cyber criminal.

2.6.4 Images

The category of product or industry in which an innovation is housed, as well as the nation in which it is manufactured, both contribute to the formation of the innovation's distinct identity. If even one of these associations is not profitable, then the client will have a negative impression of the product, which will create hurdles for its widespread use. Image barriers are clearly problems with perception that are the result of stereotypical thinking. These problems make the process of innovation more difficult (Sheth,1998)

To give another example, a lot of people have the impression that the postal service in the United States is in a sorry state. Nevertheless, it is among the most effective in the whole wide world. There are a lot of other prevalent misconceptions that are wrong as well. There is no universal rule that states that small enterprises are more entrepreneurial than large ones. It's not always the case that centralised companies are more efficient than decentralised companies. There is no guarantee that private institutions are more forward-thinking than their public counterparts.

The unfavourable perception of certain other nations acts as a roadblock to the introduction of innovations that originate in other nations. For instance, India is one of the leading manufacturers of industrial machine tools; nevertheless, up until very recently, it suffered from a terrible image that was unconnected to the quality of the items it produced. How can a nation that has free-roaming cattle and people who perform snake-charming be expected to manufacture machine tools, much less tools of good quality? For India to be able to overcome this negative perception, it required a significant amount of marketing work. In a

similar vein, consumers have a tendency to be sceptical of electronic products that are created in Hong Kong, Taiwan, and Korea.

2.7 TECHNOLOGY READINESS (TR)

The term "transformational thinking" (TR) refers to a manner of thinking on how to accommodate new technology (Parasuraman, 2000). One's openness to embracing technology is impacted by a variety of factors, including innovativeness, optimism, discomfort, and insecurity. TR is motivated by optimism and innovation, which motivates customers to adopt positive attitudes; nevertheless, discomfort and insecurity are inhibitors, which make consumers unwilling to utilise technology. This inhibits TR's ability to meet customer needs (Lin and Hsieh, 2006). TR levels are linked to the adoption of more complex technology, the perception of how easy it is to use, and increased usage (e.g., Lin and Chang, 2011; Massey et al., 2007).

TR studies have been carried out to investigate the degree to which customers are ready to make use of self-service technology for boarding aeroplanes, purchasing movie tickets, and downloading mobile phone apps. For instance, Liljander et al. (2006) investigated the influence that TR has on the ratings of online self-service airline check-in systems. In the studies where it was used to describe people's intentions towards the use of self-service technologies, TR had a mixed impact (Liljander et al., 2006; Massey et al., 2007). (Gelderman et al., 2011). In multiple pieces of study, the hypothesis that discomfort and insecurity are two independent traits was not supported (Gelderman et al., 2011; Liljander et al., 2006). It was observed that optimism had a large link to the intention to use self-service technology, whereas overall innovativeness was found to be unhelpful in predicting innovation adoption. Optimism was found to be significantly associated to the intention to use self-service technology (Liljander et al., 2006).

Although the majority of studies focused on first-time users' decisions on their initial trials, one study that investigated both users and non-users (Gelderman et al., 2011) showed no evidence of the impact of TR on the decision to use airline self-service check-in kiosks. According to the writers, it seems that TR is able to capture the general opinions of clients. A positive attitude toward developing technologies does not necessarily translate into a yearning

to make use of those technologies (Gelderman et al., 2011). In their meta-analysis of the relationships between technology use and TR, Blut and Wang (2020) considered the role of mediators for TR effects. According to the findings, features of TR were associated to ease of use, utility, perceived quality, value, and satisfaction.

2.8 CONCEPTUAL FRAMEWORK

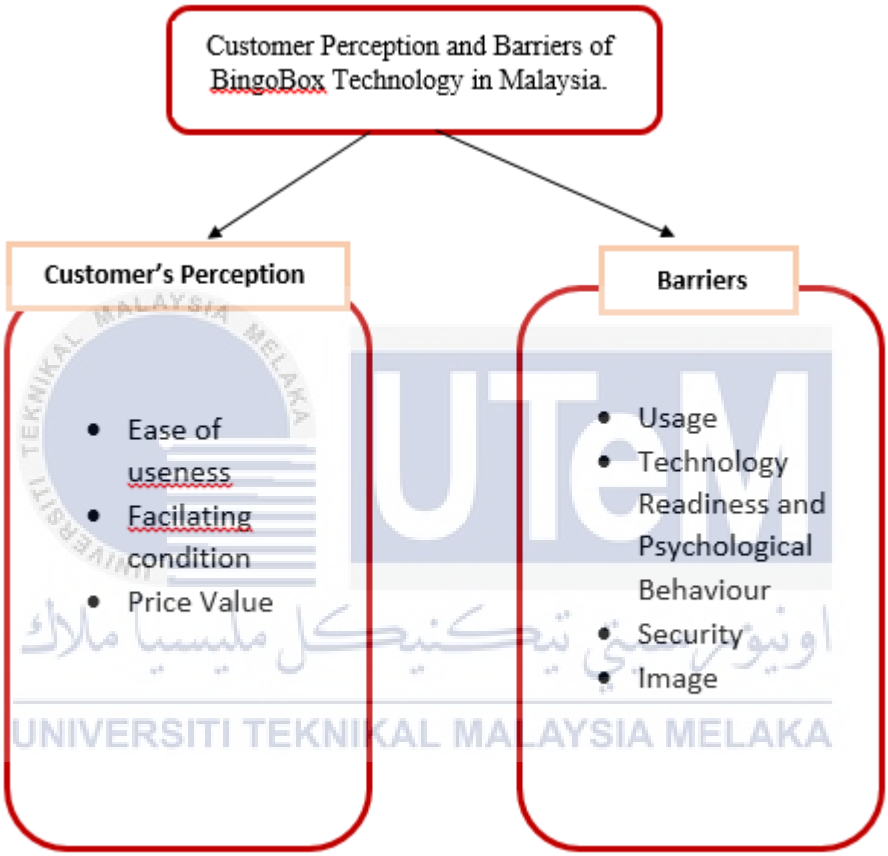

Figure 2.13: Conceptual Framework of Customer Perception and Barriers in using BingoBox Technology

2.9 SUMMARY

In summary, the researcher has provided a concise explanation of the technology, customer views, and barriers that stand in the way of the adoption of BingoBox technology. Since convenience stores and retail stores share the same building, the researcher draws from previous research and articles on unmanned store technology and also on smart retail store

technology. In addition, the researcher considers the challenges associated with implementing the relevant technology.

CHAPTER 3

RESEARCH METHODOLOGY

3.0 INTRODUCTION

The research procedure is described in detail in this chapter. It explains the methodology that was applied to conduct this study. The chapter also goes over the many steps of the research, such as participant selection, data collecting, and data analysis. The perceptions and barriers of unmanned stores in Kuala Lumpur, Malaysia were investigated in this study.

3.1 THEORETICAL FRAMEWORK

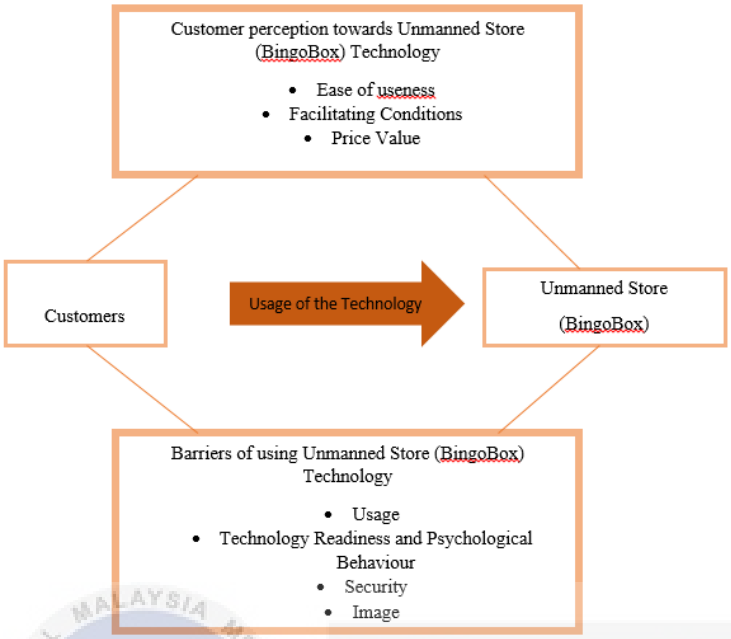

Figure 3.0: Theoretical Framework of Customer Perception and Barriers in using BingoBox Technology

3.2 RESEARCH DESIGN

A research design is required since it must include all of the relevant aspects for this study. According to (Saunders et al, 2019), research design is the entire strategy for the researcher to answer the questions. It will include specific study objectives, specify the sources from which researchers want to collect and analyse data, and explain how researchers intend to collect and analyse data. While research design, according to Burns and Grove (2003:195), is "a plan for performing a study with maximum control over elements that may interfere with the validity of the findings." A study design, according to Parahoo (1997:142), is "a plan that defines how, when, and where data will be collected and analysed." A research design is defined by Polit et al (2001:167) as "the researcher's overall approach to addressing the research question or testing the research hypothesis."

(Yannis and Nikolaos, 2018) discovered that study design is utilised to improve knowledge and use that information to establish assurance, solve problems, offer new approaches, and analyse creative work. According to Creswell (2014), researchers should

question how they can gather and interpret data, focus on the techniques they plan to use in their study that will guide their methodology, and challenge themselves regarding the knowledge assertions and analytical viewpoints they bring to any analysis.

There are four types of research design which were exploratory, descriptive, explanatory, or experimental. Exploratory research is formulating a problem for more accurate investigating a problem for more accurate investigation; descriptive research identify and obtain information on characteristic of a particular issue like community, group or people; explanatory research explore a new universe with one that has not been studied earlier whereas experimental is causal relationship under controlled situation (Akhtar, 2016).

Through this research, researcher decided to use exploratory research design. Explorative studies are conducted, according to Polit et al (2001:19), when a new subject is being examined or when little is known about a topic of interest. It's utilised to look at the full scope of the phenomenon and other components that may be involved. In this study, exploratory design helps researcher to further understand how people's perception towards unmanned store technology. Since the idea of unmanned store are relatively new, exploratory research would be a go-to research design. Not just that, we will also be looking at the barriers that leads towards their intention of using unmanned store.

3.2.1 METHODOLOGICAL CHOICES

Creswell (2009) said that there are three common approaches on conducting research; quantitative, qualitative and mixed method. Qualitative method has been chose by researcher as the method used for this research.

Qualitative research is a holistic approach to learning that entails exploration. Qualitative research may also be defined as an unfolding model that takes place in a natural setting and allows the researcher to acquire a level of depth through active participation in the actual events (Creswell, 1994). The social phenomenon being researched from the participant's perspective is one identifier of qualitative research. There are various sorts of qualitative research designs that are used to frame the study strategy. As a result, the various methodologies have a significant impact on the study tactics investigated.

Qualitative research entails the utilisation of obtained data for the goal of describing, explaining, and interpreting it. Qualitative research, according to Leedy and Ormrod (2001), is

less structured in description since it formulates and establishes new theories. Qualitative research is also known as an effective approach that takes place in a natural setting and allows the researcher to generate a level of detail by being deeply involved in the actual experiences (Creswell, 2003). The premises of qualitative research are based on inductive rather than logical reasoning. The researcher's attempt to explain comes from the observational aspects that generate questions. In contrast to quantitative research, where the researcher is totally outside of the phenomena being researched, qualitative research has a strong association between the observer and the data. There are no predefined assumptions or a starting point for the researcher to work from (Leedy and Ormrod, 2001).

In this research, customer,s perception towards shopping expectation via unmanned store technology and the barriers that leads towards the intention of using unmanned store is what being studied by the researcher. Therefore, the information provided by participants was interpreted and later analysed in order to achieve research, goal and objectives.

3.2.2 PRIMARY AND SECONDARY DATA RESOURCES

Primary data is collected first hand by the researcher for a specific research purpose. The researcher might collect information via observation, psychometric test, interview etc and this data may be qualitative or quantitative. With quantitative primary data, the researcher might analyse the data using descriptive and inferential statistics or with qualitative primary data they might conduct a grounded theory or discourse analysis.

An example of a qualitative primary data collection from clinical psychology would be when Brown et al (1986) interviewed participants and information was collected about self-esteem, life events and perceived social support over the course of the longitudinal study.

Primary data contrasts with secondary data which is collected indirectly via existing records about people who fit the criteria for the target population or it can be previously published research in a certain area, which is sued for example to inform the literature search that a psychologist performs before embarking on a new piece of research; here you can see that the researcher never actually collects any data themselves as in primary research.

Through this research, researcher will be using interview with several respondent that resides or works in Kuala Lumpur and Selangor specifically. This is due to the fact that

BingoBox are only located in the heart of Kuala Lumpur, which is Bukit Bintang and usually accessible for those who works or live in both Kuala Lumpur and Selangor.

The data those have been collected already and readily available from other sources are called as secondary data. When compared to primary data, these secondary data are cheaper and more quickly obtainable. Usually, desk-based research is used to collect secondary data. After arriving at the secondary data, the researcher should examine the validity and reliability. Thus, the researcher should consider the secondary data which is highly valid and well-referenced in academic articles (Creswell, 2003).

Although all data is intended to provide information for analysis and decision making, secondary data can be used in several ways in the context and conduct of a research/consultancy project. In accordance to Malhotra and Birks (2000) and McDaniel and Gates (2004) secondary data can be useful to

- To identify the research problem
- To develop a strategy to arrive at the solutions for the research problem
- To construct a sampling plan
- To formulate a suitable research design
- To find out the answers for certain research questions or to test some hypotheses
- To interpret primary data
- To validate the outcomes from qualitative research
- To identify the potential problems
- To obtain the required background information and to improve the credibility of the study.

For secondary data, mostly all of the data are collected through sources such as general publications, websites, journal articles and some of internal records. By using secondary data, it helps researcher a lot in order to gain better understanding and knowledge of the study, theory and concept. By using both primary and secondary data as a source of information, the progress of the research will supported and completed in the manner of time.

3.3 DATA COLLECTION

3.3.1 SAMPLE

According to (Polit et.al,2001) sample are being define as “a proportion of a population”). The sample are chosen from residences or workers who resides or works in Kuala Lumpur and Selangor, Malaysia. There will be few specification needed to narrow down the list to finally come out with the right amount of informers. A properly selected sample can provide data that is representative of the general population.

3.3.2 SAMPLE SIZE

To obtain valid results, it is not necessary to collect data from everyone in a community. In qualitative research, only a subset (or sample) of a population is chosen for each study. The research objectives of the study, as well as the features of the study population (such as size and variety), decide who and how many persons should be chosen.

Holloway and Wheeler (2002) claim that sample size has little bearing on the significance or quality of a study, and they point out that there are no recommendations for choosing sample size in qualitative research. Qualitative researchers rarely know the exact number of persons who will participate in the study ahead of time; the sample size and composition may change as the study progresses. Sampling continues until saturation is reached, at which point no new information is generated (Holloway, 1997)

3.3.3 SAMPLE PROCESS

According to Burns and Grove (2003), sampling is the process of selecting a group of people, events, or behaviours to examine. Polit et al. (2001) confirm that when sampling, a segment of the population that represents the entire population is chosen. The generalizability of the findings is highly tied to sampling. The sampling in this study was non-probable and purposeful. Non-probability sampling, according to Parahoo (1997), involves researchers using their judgement to choose the participants to be included in the study based on their understanding of the phenomenon.

In this study, we employed purposeful sampling. Purposive sampling, according to Parahoo (1997), is "a type of sampling in which the researcher consciously chooses who to include in the study depending on their ability to supply relevant data." The researcher's motivation for taking this technique was to learn more about the existence of an unmanned

business called BingoBox and how people perceive technology in the long run. Only those who live and work in Kuala Lumpur and Selangor were specifically selected to participate in this survey.

3.4 RESEARCH STRATEGY

"The broad plan of how the researcher would go about addressing the study objectives," according to Saunders et al (2009). Research strategy, according to Bryman (2008), is "a general approach to the conduct of research." Remenyi et al (2003) define research strategy as "the overall direction of the research, including the process through which the research is undertaken." According to Saunders et al. (2009), an effective research strategy should be chosen based on the research questions and objectives, the degree of current knowledge on the topic area to be explored, the amount of time and resources available, and the researcher's philosophical underpinnings.

Based on the above criteria, a researcher can choose from a variety of research methodologies, each with its own set of characteristics. Although numerous research strategies exist, Yin (2003) and Saunders et al (2009) noted that there are significant similarities among them, and so the most important consideration would be to choose the most favourable strategy for a certain research topic. Experiment, survey, case study, action research, grounded theory, ethnography, archival research, cross sectional studies, longitudinal studies, and participatory enquiry are some of the typical research methodologies used in business and management (Easterby-Smith et al., 2008; Collis and Hussey, 2009; Saunders et al., 2009). In this study, researcher will be using case study as the research strategy in order to complete this report.

A case study is a research method for acquiring a full, multi-faceted understanding of a complex subject in its context. When an in-depth examination of an issue, occurrence, or phenomenon of interest in its natural real-life setting is required, the case study approach is particularly effective (Kumar, 2014). Case study approach, according to (Baxter and Jack 2015), provides tools for researchers to explore complex phenomena relevant to health science research in order to create theories, evaluate programmes, and propose interventions. Furthermore, depending on the researcher's epistemological viewpoint, case studies can be approached in a variety of ways, including critical (questioning oneself and others' presumptions), interpretivist (trying to understand individual and shared social meanings), or

positivist (orienting toward natural science criteria, such as focusing on representativeness considerations) (Crowe 2011).

3.5 DATA ANALYSIS

The data was then coded, analysed, interpreted, and validated once it was transcribed. The process of transcribing the interviews can aid the researcher in gaining a better knowledge of the subject by allowing him or her to listen to and read the transcribed interviews multiple times. Once all of the data had been transcribed, the data was coded (see appendix three). The applied codes are keywords that are used to categorise or organise text and are considered an important component of qualitative research (Sarantakos, 1998).

The data was then analysed, categorised and organised into themes and further sub-themes which emerged through the coding process. The themes which emerged were assigned a specific code accordingly. The next stage involved interpreting the data by identifying any reoccurring themes throughout and highlighting any similarities and differences in the data. The final stage involved data verification, this process involves a process of checking validity of understanding by rechecking the transcripts and codes again, thus allowing the researcher to verify or modify hypotheses already arrived at previously (Sarantakos, 1998)

3.5.1 THEMATIC ANALYSIS

Thematic analysis has been poorly branded, yet widely used in qualitative research (Braun & Clarke, 2006), and has been rarely appreciated in the same way as grounded theory, ethnography, or phenomenology. Braun and Clarke (2006) argued that Boyatzis, 1998; Holloway & Todres, 2003; Ryan & Bernard, 2000). Others, including ourselves, have claimed thematic analysis should be considered a method in its own right (Braun & Clarke, 2006; King, 2004; Leininger, 1992; Thorne, 2000).

A rigorous thematic analysis can produce trustworthy and insightful findings (Braun & Clarke, 2006); however, there is no clear agreement about how researchers can rigorously apply the method. Although thematic analysis has been described (Aronson, 1994; Attride-Stirling, 2001; Crabtree & Miller, 1999; King, 2004), guides on conducting thematic analysis have primarily focused on conducting research with an applied focus (Guest, MacQueen, & Namey, 2011) or described inductive versus deductive coding (Fereday & Muir-Cochrane, 2006). While much has been written about grounded theory, ethnography, and phenomenology, this

trend has not yet reached thematic analysis. There is insufficient literature that outlines the pragmatic process for conducting trustworthy thematic analysis. In writing this article, we attempt to fill this gap in the literature.

3.6 SUMMARY

This chapter discussed the methodological approach undertaken in the research. It outlined the starting from research design and all the way to data analysis. Exploratory research approach being chose due to the fact that barriers in using unmanned store are not something that have been discussed enough in the field. Since unmanned store are a new thing especially here in Malaysia. The researcher hope that this study will be beneficial for entrepreneurs out there who would like to venture into the world of unmanned store.

This study was carried out utilising a qualitative approach. The qualitative approach, according to Creswell (2003) and Williams (2007), is a naturally unfolding model that allows the researcher to gain a high level of information through participating in the actual events. This is due to the fact that it allows the researcher to do in-depth research on the price issue in order to discover new ideas, technologies, and interpretation. The qualitative research method was employed to obtain data and information for this study because it allows the researcher to do in-depth research while avoiding neutral bias throughout the data collection process.

The primary data for this research was collected through an online interview session with the few selected respondents that fulfil the requirement needed to participate in this study. Secondary data may be found in articles, journals, websites, books, and other online sources that are related to the research topic and can be used to support the data collection process in this research.

CHAPTER 4

FINDINGS AND ANALYSIS

4.0 INTRODUCTION

In this chapter, the results of case studies of perception and barriers of BingoBox Technology will be discussed. All of the data are collected by conducting a series of qualitative interview with 5 customers that shops and used BingoBox technology. The findings are then being analysed and studied using qualitative method such as conversation analysis, content analysis and also thematic analysis. The researcher progresses from reporting the occurrence to conceptualizing and abstracting themes through the analysis process, while all the while maintaining the voice of the participants who are represented by the data (Thorne 2000).

Also, in this chapter, findings that are related to the data collected regarding customer perceptions based on their shopping expectations via BingoBox and barriers that leads toward their intention to use BingoBox technology (

4.1 RESPONDENT PROFILE

Qualitative interview are being used to interview 5 informers' which are the customers that shops and uses BingoBox technology. The interview session will collect effective data and information regarding the perceptions and the barriers for customers to use IoT BingoBox Technology.

The following table will show all about the respondent background. Since in this research, we will be focusing more on the customer who resided, working or studying in Selangor and Kuala Lumpur, all of these customers

Respondent	Name and Age	Current Status (Working, studying etc.)	Place of reside/working/studying
1	Nur Hanees Binti Mohd Ramlee (22 years old)	Currently studying Bachelor Degree in UTeM	Residing in Kampung Batu Muda, Kuala Lumpur.
2	Nurul Husna Binti Mursyidi (23 years old)	Currently studying Bachelor Degree in UTeM	Residing in Puchong, Selangor.
3	Kiki Anijam (23 years old)	Currently working as Dental Surgeon Assistant.	• Residing in Bandar Kinrara, Selangor. • Working in Damansara, Selangor.
4	Muhammad Aliff Najmi bin Md Noor (23 years old)	• Currently studying in Management and Science University • Working part time as a front house crew service.	• Residing in Puchong, Selangor. • Working in Universal Bakehouse in Damansara Kim, Selangor.

5	Nurul Aiman Binti Mohd Rahim (23 years old)	• Currently studying Bachelor Degree in Kolej Universiti Poly-Tech MARA. • Finish intern in OCBC Bank.	• Residing in Bandar Kinrara, Selangor. • Studying in Cheras, Kuala Lumpur.

Table 4.1: Background Information of respondents that shops at BingoBox

4.2 SIGNIFICANCE OF IoT AND AI TECHNOLOGY IN BINGOBOX.

4.2.1 QR Code Scanner

Barcodes can be thought of as a type of QR code. By scanning it, you will be able to decode the information that is stored on it. In a conventional barcode, information is stored in both the width of each vertical line and the spacing between each line. The information that is being transmitted is encoded using a square pattern in QR codes. In either scenario, the data is transformed into a graphical format that can be read by a machine. In addition, the data will return to its initial format when scanned using an optical scanning tool.

A QR code is a data-encoded, scannable barcode. The term "encoded" refers to information that has been converted into a certain format. In QR codes, each character, including numeric and alphabetic letters, bytes, and kanji, is encoded as a distinct array of squares in a two-dimensional space. The configuration of the squares is restored to its initial form whenever an optical scanner is moved across the surface of the grid.

At BingoBox store, QR Code are being used to enter the store. Customers are required to scan the QR code using an app called SOSMART. Through the apps, customers can access various services such as catalogue, pre-order straight from the app, rewards and many more. The door for the store would automatically open right after customers done scanning the QR code. Same goes when they want to left the store; scan the QR code and you are ready to go.

Figure 4.1: SOSMART App Interface

Figure 4.2: QR Code Required to Open the BingoBox Door.

4.2.2 AI Self-Checkout System

The idea of a machine that provides customers with their own service is not new. On the other hand, this is the first day of a new era: the age of the self-checkout. A great number of businesses, ranging from enormous supermarkets to neighbourhood grocery stores, are moving in the direction of adopting such equipment.

A prospective purchaser is greeted as the first interaction between the self-checkout machine and the consumer. This can be implemented in a variety of ways, although touchscreen buttons are the most prevalent. Most contemporary automated teller machines are multilingual (at least bilingual). Thus, a consumer who does not speak English can typically choose their preferred language. When a customer hits the button, a beautiful (often female) voice instructs them to scan the first item.

In Bingobox store, they use a self-checkout system incorporated with AI technology. Artificial intelligence has evolved to the point where it is now an indispensable component of loss prevention in self-checkout technology. Incorporated with the camera and scanning systems, artificial intelligence enables organisations to collect insights on the self-checkout process. These insights may then be used to predict patterns, identify checkout frictions, and obtain a deeper understanding of how theft occurs. Artificial intelligence algorithms integrated with self-service checkout machines are able to identify anomalies in a customer's checkout, highlight transactions that raise questions, and alert workers when shoplifting is suspected to be taking place.

The intelligent picture scanning enables the self-service checkout systems to make an educated guess as to the item's bar code by looking at the photo. When a customer brings an item to be scanned through the frame at the register, if the bar code that is intended to be processed is not processed, but the bar code of another item is often scanned, the system can alert staff to take action.

Figure 4.3: AI Self-Checkout system in BingoBox Store

4.2.3 RFID Packaging

As a direct consequence of the COVID-19 epidemic, retail is once more venturing into uncharted territories. Now is the time for retailers to make hasty, short-term decisions, such as how to bring personnel back to work and redeploy them, as well as how to ensure the health and safety of both their employees and their consumers. Consumers are more receptive than they have ever been to innovations that improve the accessibility, convenience, and safety of their experience while shopping in-store.

Together, these alterations have reintroduced RFID to the forefront of many retailers' minds. RFID is prepared to solve the use cases that are at the heart of the current demand for more multichannel, more data-driven, more accurate, and more customer-driven purchasing experiences as a result of breakthroughs in readability, range, and cost. Inventory management is the most frequently known and utilised RFID application in retail. Accurate product location data may reduce the cost and complexity of inventory management, accelerate picking, packing, and delivery, and increase customer satisfaction. Consequently, tracking should be the starting point for many businesses, as unit-level tagging creates the groundwork for other use cases.

BingoBox uses camera and RFID tags for every item on shelves for a more seamless shopping experience. In the beginning, they have no research power yet to do computer vision so they opt on using RFID technology which is way cheaper and mature technology.

Figure 4.4: RFID Tag on food packaging

Source: Google Image, 2022

4.2.4 Cashless and Contactless Transaction

Digital payment systems, also known as cashless payment systems, are alternatives to traditional cash transactions. The use of traditional paper and coin currency can be replaced with an alternative method, which is the utilisation of cashless payment methods. A payment gateway is utilised in the process of cashless payments. This allows for the electronic transfer of funds to take place through a mobile phone, website, kiosks, or other digital device using debit cards, credit cards, or ACH.

These days, society are more prone towards using cashless method to buy things or their daily needs. Cashierless lifestyle just make it easier for them to make a purchase since there's no need to carry around heavy purses just to find some spare changes to buy a bottle of water. Nowadays with the existence of electronic wallet, it is way more convenient for them to not carry money at all. The trends has shown how customers now are shifting towards cashless lifestyle.

BingoBox incorporated lots of cashless transaction into their store to ease the payment transaction. There are several

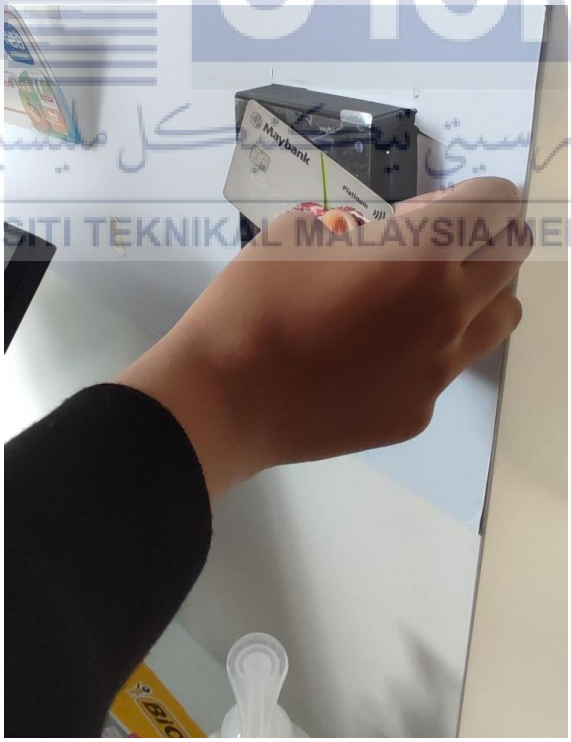

Figure 4.5: Cashless transaction done using debit card in BingoBox

4.2.5 24/7 Visual Service Staff

Since there are no worker to supervise the store physically, there are 24/7 visual service staff that are available on site. Customer could wave at the button to call for help, then they can see the customer's service face to face. Any available helper would come to assist through the screen provided there at the cashier station. BingoBox store have a video conference system embedded into them that make it easier for customer to receive assistance using visual when they needed help rather than hearing through the intercom.

Figure 4.6: 24/7 Visual Customer Service Staff

4.3 PERCEPTIONS OF CUSTOMERS TOWARDS BINGOBOX

4.3.1 Great adoption of technology

Because of the emergence of modern technology, the world we live in now is dramatically different from the world we lived in even a few years ago. One of the most major changes brought about by the internet is the advent of the internet of things (IoT). The Internet of Things (IoT) is a network of physical devices that can collect, store, distribute, and analyse data and are connected to the internet.

IoT will become known for its data-driven approaches to strengthen essential retail operations if artificial intelligence technologies are applied to improve services and reduce the load on store staff (J.J.Low, 2022) AI and IOT are the core technology that are being implemented in Unmanned store technology which in this case is BingoBox Store.

"*I think it's a great idea since Malaysia are clearly moving towards modernization. We don't have to carry cash with us everywhere. In case of emergency, you can just bring your phone and cards with you",* are what R4 come out with.

This shows how the adoption of AI and IoT are much welcome here in Malaysia in a shape of unmanned store BingoBox.

As a result of advances in technology, the world is becoming more intricately interwoven and complicated. The value of data cannot be quantified. It does not matter how far apart you are, where you are located, or what time zone you are in. Communication occurs at the same moment that it is received. Individuals and organisations alike need to react quickly and effectively to these shifts in the environment (A.Sharon, 2018). In other words, they have to be willing to adjust whenever the conditions around them alter.

4.3.2 Curiosity of new technology

Humans and other species, including other animals, have been found to exhibit a trait known as curiosity, which is related with curious thinking and behaviours such as exploration, investigation, and learning. The process of learning and the desire to acquire new knowledge and abilities are two aspects of human development that are

intimately connected to the trait of curiosity (Zuss.M, 2012). Curiosity what's drive people towards trying something new and that's include new technology.

In spite of the fact that researchers largely agreed on the connection between curiosity and exploratory behaviour, attempts to describe its dimensions continued throughout the 1980s (Naylor 1981; Ainley 1987). Throughout this time period, there was a persistent emphasis on curiosity as it relates to formal learning (Engelhard and Monsaas 1988). Bingobox offered a new kind of technology towards people here in Malaysia and with that of course, there will be curiosity for customers to try for themselves this new technology.

"Youngster are more prone towards using new technology. Since unmanned store are not that many here in Malaysia, the concept itself already attract many people to try and use it themselves" answered R1 to this question.

Customers anticipate not only a product's or service's ability to stand out from the competition in terms of its features or technology, but also an experience that will leave an impression on them.

4.3.3 Changes in purchase experience

As we all know, unmanned store centered around cashless society where there are no need for physical money to purchase the products. Traditional cash transactions are currently being transformed into online electronic payments, and currency is being replaced by virtual money. Consumption experiences that integrate smart technology and physical stores have already emerged (Chi Wang, 2021).

In recent years, technology has enabled businesses in the retail sector to personalise their customers' shopping experiences by capitalising on data and new capabilities. This trend is taken one step further by the Internet of Things (IoT), which offers purchasers something that has a more genuine and personalised feel to it (C. Koeneman, 2019). The term "Internet of Me" refers to the situation in which "everyday" devices and systems can now be connected with the Internet of Things (IoT) to collect and communicate data in real time.

"Okay, in my opinion, BingoBox can make a huge difference in Malaysia due to lack of employees hence it is more customer-friendly. So we don't have to deal with

other people. It also impacted me since I don't like being in crowded areas and I don't like having any touch with other people. So it's a fantastic thing for introverts like myself", are what R3 respond with.

BingoBox provide their customers a better overall experience thanks to the implementation of AI and IoT. The ability of customers to avoid wait times and checkout procedures is what makes shopping with unmanned store a less stressful experience compared to shop in physical store.

4.3.4 Ease of use

When we talk about something being "easy to use," we mean that we don't have to put in a lot of work or that it's not overly complicated (Davis, 1989). The user considers the system to be simple to operate if it is of great benefit to them in their work, does not call for substantial training to become proficient in, and can be used with little to no effort at all. If users perceive that the software is straightforward, there is a greater chance that they will use and accept the system. This also suggests that the technology will live up to the expectations of users with regard to its ease of use. According to the findings of this research, when consumers talk about the perceived ease of use of IoT products, they mean that they believe using these products is straightforward and straightforward (Davis, 1989).

With world right now are heading towards post Covid-19 phase, cashless payment becoming a more viable channel of payment instead of using cash. The rise of the internet and digitization has hastened the adoption of cashless payment as an alternative payment method. Currency and checks have given way to payment cards such as credit and debit cards, as well as electronic payments such as e-money, online banking, and mobile banking. The electronic payment system speeds up transactions and improves client experiences (Lim 2019).

From the interview, R5 responded towards this question with*,"For example, when it comes to payment method. I Am very satisfiesd with the ways of payment provided by BingoBox. I can just use my debit card and wave it, if I ever firget to bring my card with me, I can use e-wallet apps like Boost or Grab Pay. It really make things more easier".*

Cashless system here in BingoBox are very straightforward and easy to use without having prior knowledge about the technology. Since they mostly use payment gateaway that most people know how to use it. This attract those who love to carry less with them.

4.4 BARRIERS IN USING BINNGOBOX TECHNOLOGY

4.4.1 Usage

According to Ram and Sheth (1989), the usage barrier is the most accurate predictor of how consumers would react to newly introduced products and services. A barrier to utilization occurs when consumers do not view the innovation as being consistent with the routines, procedures, or practices they have created for themselves. When the consumer routines need to be altered in order for the invention to be useful, one might anticipate a relatively drawn-out process before the idea is accepted (Ram & Sheth, 1989). According to the innovation diffusion hypothesis, the complexity barrier and the usage barrier are very comparable (Mani & Chouk, 2018).

Shifting from traditional ways of buying things surely will bring confusion towards people especially those who trying to use the technology for the first time.

"*I expect smooth technology like Amazon Go, at least. But when I got there by myself, just for the scan it took a long time before the door opened. The process is quite difficult for me",* is what R5 has to say about the usage of BingoBox technology.

Eventhough BingoBox are being dubbed as a smart convenience store, it still has a long way to go to be able to catch up with Amazon Go in term of its usage.

Take Amazon Go as example, they rely solely on Amazon apps for customers to make a purchase. There' no need for customers to scan any QR code in order to get inside of the store and buy things. They use a system where instead of customers using their card to make payment, Amazon would just deduct the prices of product straight from their apps. Customers literally only walk inti the store, grab their desired item and walk out of the store. Everything would automatically being paid without needing them to take out their cards.

4.4.2 Technology Anxiety

The digital and technical revolutions that our societies and economies are undergoing are unprecedented in scale. Digital skills are becoming just as vital as literacy, and the world needs people who are digitally competent so that they can not only use new technologies but also develop them and take the lead in their use (D. Giacomo, 2019). BingoBox are considered as new technology here in Malaysia where the concept of unmanned store are very much new and unexplored yet. This could inevitably leads towards technology anxiety when customers try to use them.

The research that has been done up to this point suggests that cognitive and psychological aspects may be elements that contribute to the difficulties and disappointments that certain individuals experience while engaging with technology. Even though there is a wealth of information demonstrating the positive aspects of computer education and application use, the negative aspects have not been adequately addressed (J.Raneiri, 2019).

The reasercher has found few similarities on interviewee respond regarding the technology anxiety barriers.

"..but for those elderly that does not know how to use smartphone it could be quite hard. It is difficult for them to accept the new technology. They can accept it but to navigate thru it they will still find it hard", reported R1.

"For me BingoBox technology can only be used by younger people compared to seniors or older generation. This is because the steps required for people to purchase products might be hard for them to understand..", is what R4 responded with.

From both of these responds, the reasercher could see that technology anxiety are often related to older generations. Older generation are those we considered as the 'late adopter' of technology. They takes time to finally adjusting themselves with the new technologies hence why there are more technology anxiety directed towards elder generation.

4.4.3 Security and privacy concern

People will never completely abandon the use of cash in favour of cashless transactions in retail stores or shops because of worries about their personal safety and

privacy. This is very certainly the single most significant factor that has a negative impact on potential clients who use electronic payment methods. Although it is arguable that the Internet is the first thing that comes to mind when someone thinks of e-payment security, there are security concerns associated with each and every payment channel that accepts electronic payments (AtifAman, 2020).

This is backed by the numerous articles that have been published in the press about security flaws in the internet. People are constantly exposed to and hearing a range of terms that relate to the dangers posed by the Internet, such as hackers, fraud, crackers, computer viruses, identity theft, phishing attacks, spyware, malware, and a number of other types of malicious software (A.Hassan, 2020). Despite this, the Internet is not the only place where security vulnerabilities can be found.

The data collected by researcher reveal that this does not become a barrier for interviewee to use BingoBox technology. Almost all of the respondents gave out the same

"I don't feel threatened or whatever regarding security. They didn't ask for further information like IC number or anything. So there's nothing to worry about‘**,** reported from R4.

R1 remarked that, "*From my opinion, if we see the store from the outside, you could feel that it is not quite safe. But once we step in the store, there are cctvs at every corner of the store. Not just that, enter the store also require us to scan the QR using their own apps and the good thing is the door won't open unless you have successfully scan the code".*

4.4.4 Image

Undeniably, image plays an important role in someone's decision especially when it comes to buying products or using a service. According to the findings of a survey that was carried out by Toksar and Senir (2015), consumers believe that the goods that they buy ought to have been created in a developed nation. According to the same research, customers who believed that the country of origin could be deduced from a product's brand made purchasing decisions that took into account the country in which the product was manufactured.

Simply said, image barriers are issues in perception that are brought on by stereotypical thinking. The process of invention is made more difficult by these factors (Sheth, 1998). The general public continues to have the misconception that the quality of Chinese products and innovations is lower than that of Japanese technology. This is a popular notion. This misconception about China's reputation for producing high-quality goods is reinforced every time the country's exports are discussed.

However, the researcher identified that most of the interviewer are against this stereotypes. There are few similarities and consistency in their statements in the interviews.

In the interview session, R1 responded with, "*for me, the technology are advance enough. As we know, there is no cashierless store technology yet here in Malaysia. At most, we only have self-service kiosk. So, if we want to compare it with other countries, it is just as good and efficient, if not better than the neighbouring countries."*

"Hmmm even if it is from China, Japan, it still the same regardless", according to respond from R2.

In addition, most of the interviewer shows a positive outcome regarding this barriers. For them, technology from China are just as good compared to other developing countries.

CHAPTER 5

CONCLUSION AND RECCOMENDATION

5.0 INTRODUCTION

In this research, there are two key objectives which are to study the perceptions based on their shopping expectation via BingoBox store and to investigate the barriers of BingoBox store that leads towards customer's intention to use them. In order to achieve these research objectives, the researcher had selected BingoBox store located in Kuala Lumpur Malaysia which is suitable with the subject given which is Unmanned Store Technology. Discussions on the findings had already been discussed in the previous chapter and finally be concluded in this chapter. In this last section, there are also future recommendations for further study included.

5.1 OBJECTIVE 1: TO IDENTIFY HOW CUSTOMER'S PERCEPTION ON BINGOBOX STORE TECHNOLOGY.

The first question that the researchers looked at for this study was on the perceptions that customers have of BingoBox in relation to the expectations they have for shopping there. According to the findings and analysis that were carried out in the prior chapter, the researcher discovered that there are four different perceptions that show the most feedback from the respondents who are taking part in this research. These findings are based on the findings and analysis that were carried out in the previous chapter.

Based on the discussion, what customer's perceptions on BingoBox technology are it's a great adoption of technology here in Malaysia. As everyone know, unmanned store are a very new concept of retailing especially in Malaysia. There are few who might hear or came across one of these stores. Customers find it as a "fresh" new idea that could be adopt in convenience store across Malaysia. It is imperative that the nation move forward, and the implementation of AI and IoT technologies inside the retail sector, and more specifically within convenience stores, is the most effective method to achieve so. There is no denying the fact that the deployment of AI and IOT can result in a number of benefits that can be obtained by a variety of different parties. These benefits include: Customers will be able to make use of these advantages in their interactions with the company.

Next perception is how customers develop a curiosity towards using the new technology. There is nothing that can satisfy one's natural curiosity in the face of the introduction of a brand new technological advancement. Customers are naturally curious about how this new technology works and how it varies from existing technologies that are currently available, such as self-service technology. Customers are also curious about how different is this technology compared to one that already available in Malaysia such as self-service kiosk.

The third perceptions are how unmanned store changes the purchase experiences for the customers. The phrase "purchase experience" refers to the purchaser's perspective on the entirety of the purchasing process, beginning with the recognition of a need and continuing through the investigation of available options and concluding with the actual transaction. The enjoyment that a customer derives from their time spent shopping at a certain establishment can have an effect on their propensity to return there for future purchases. The application of technology by BingoBox follows suit in this regard as well. BingoBox is still relatively new, thus the majority of people have just recently become aware of its existence. There is no

denying that shopping for products at an unmanned store is an entirely unique experience compared to doing so in a traditional brick-and-mortar establishment. Customers can now make purchases using a debit card or an electronic wallet application rather than carrying cash around with them, eliminating the need for them to carry cash at all times. People are more likely to continue purchasing and using technology from the BingoBox shop after having a positive experience there.

5.2 OBJECTIVE 2: TO INVESTIGATE THE BARRIERS OF BINGOBOX STORE TECHNOLOGY THAT LEADS TOWARDS CUSTOMER'S INTENTION TO USE THEM.

For the second research question, the researcher now focused on investigating the barriers of BingoBox store technology that leads towards customer's intention to use them and with that researcher had come out with 4 barriers that gets the most feedbacks from the customers. Through the information obtain by the researcher, the barriers

Based on the analysis that already been done in the previous chapter, usage are the most noticeable barriers that could be gathered from the respondents. Customers will definitely have a period of adjustment anxiety when they go from using more conventional purchase practises to making use of entirely novel technology. When it comes to cashless systems, the consumer interface of the store apps is the part that most customers do not understand. The user interface (UI) of the BingoBox mobile app is problematic for the majority of respondents, as a result of which the app is difficult for them to navigate and may be unresponsive when they try to use it. As a direct consequence of this, users may encounter challenges and lose interest in making use of the BingoBox technology.

The second barriers are technology that receive feedbacks among the respondents. Because practically all of the individuals who were questioned were in their twenties, they were easily able to use the BingoBox programmes on their mobile phones in order to enter contests and buy merchandise. Nevertheless, they voiced their concern for the elderly in the event that they came into this store by accident and decided to make a purchase from there. Lack of familiarity with new technologies is one of the key contributors to the anxiety that some elderly people face when using new technologies. It's possible that they didn't grow up around technology, and as a result, they lack the abilities necessary to use technology in BingoBox store. For some older folks, technology might be overwhelming. Particularly those accustomed to a slower pace of life. They may experience anxiety and worry when introduced to technology. Technology's frustrations sometimes be too much for seniors to bear. When this occurs, people may abandon technology altogether.

Next, the third barriers that been analyse are security and privacy concern. When we give private information to a third party, such as the number on our identification card, the details for our debit card or our credit card, we will have a sense of insecurity. It's almost as if we're giving irresponsible people the opportunity to take advantage of the situation and engage

in heinous activities like stealing data and other such things. However for the respondents, this does not seems like a big problem since they sure that the BingoBox technology is secure and may be utilised without fear of security or privacy issues. This is because BingoBox only accepts debit cards and does not require clients to submit their debit or credit card pin numbers. Other cashless payment systems, such as those offered by the Boost and GrabPay apps, are also safer options.

Image also are not seen as much as a barriers for customers to shops at BingoBox store. There's a stereotype that always been rooted in society for a long time where products or technology from China are low in quality compared to its neighbouring countries like Japan, South Korea and etc. Products manufactured in industrialised nations are held in higher esteem by consumers, in contrast to those manufactured in underdeveloped or developing nations, which are thought to be of lower quality (Khanna, 1986 On the other hand, none of these responders have ever mentioned having a problem with this. Even though it was developed in China, the technology used by BingoBox performs just as effectively for them as that developed in Japan. Already a leader in the field of unmanned technology, China is home to hundreds of retail outlets, such as BingoBox, that operate without human assistance.

5.4 CONTRIBUTION OF STUDY

This study discusses the perception of customers and the barriers that leads towards them using BingoBox technology. The findings presented in the chapters that came before this one help to acquire insight into how customers, whether they are first-time users or repeat customers, perceive establishments that do not have employees present. In order to develop the technology and maybe attract additional consumers to ultimately open it up and test it, it is vitally important to first have an understanding of the obstacles that led to the decision that they made. This research is beneficial for not only both researcher and BingoBox management, but also towards the other for entrepreneurs out there who decide to venture into the unmanned store industry in Malaysia later. Result from the finding and analysis, new conceptual framework are being construct by the researcher:

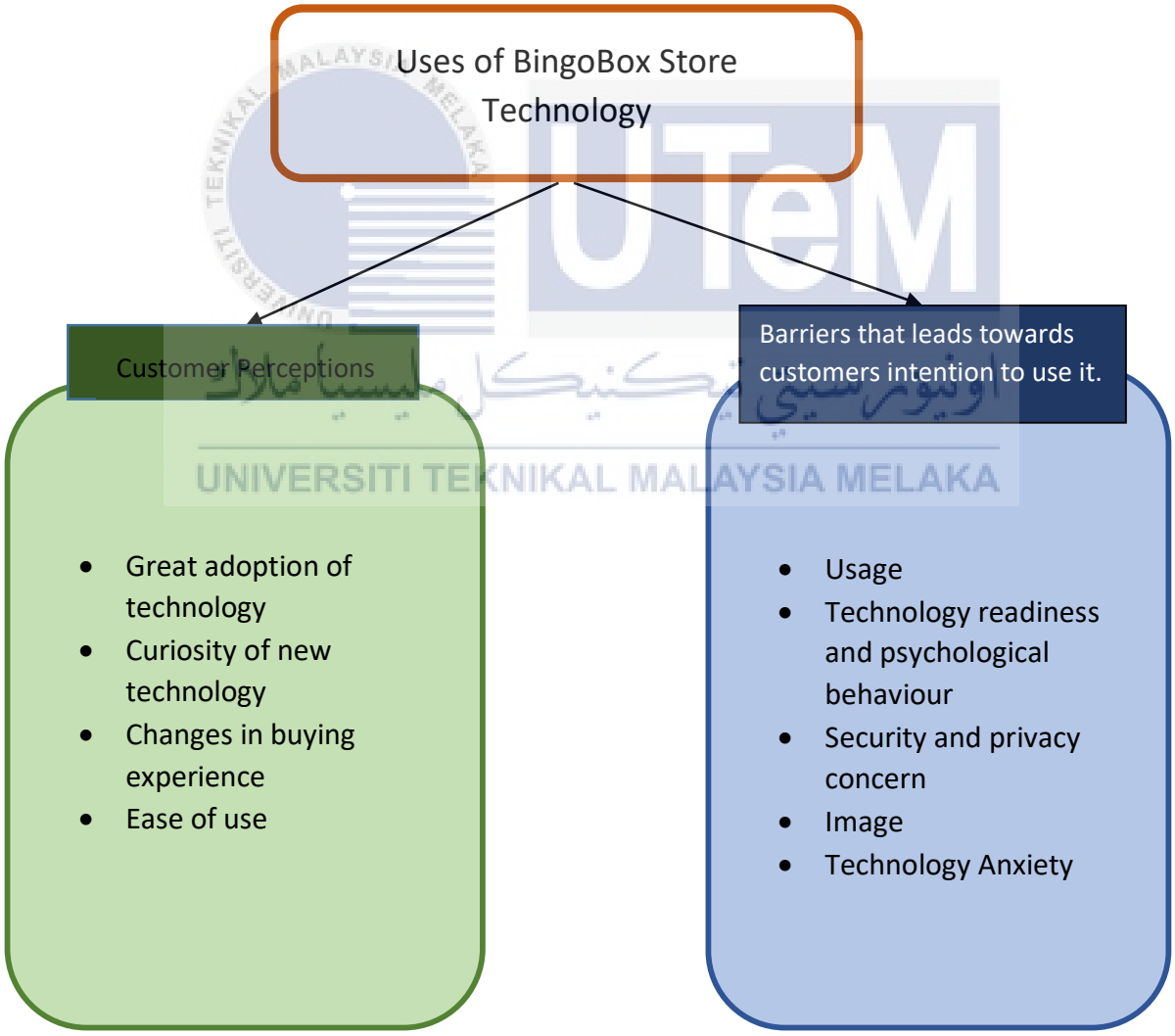

Image 5.1 : New Conceptual Framework Proposed by Nurhanies Binti Mohd Abidi (2022)

5.5 LIMITATIONS OF STUDY

Throughout the course of this research, the researcher was confronted with a number of barriers and limitations. It is well aware that Malaysia is currently attempting to cope with the implications of the COVID-19 situation. This endeavour will be made more challenging as a result of the government's announcement that a mobility control order (MCO) will be implemented. As a consequence of this, the researchers were unable to conduct in-person interviews with most of the sources of their information and were instead required to rely entirely on online interview sessions. For the purpose of gaining access to and collecting data for this study, the researcher needs to make use of the internet. The researcher is unable to visit the research place frequently because the location of the stores and the lack of customers that visit and shops at the store thus making the researcher had a hard time to conduct interview with respondents.

It would indicate that one of the challenges faced by the researcher was in the utilisation of secondary materials. There is a scarcity of pertinent data and resources in Malaysia due to the fact that unmanned stores are a relatively new technology in this country. There are several different sources that provide BingoBox's competitors the advantage over the company itself. Because there are so few journals devoted to studying unmanned store technology, it is difficult for the researcher to provide answers or explanations for the numerous aspects of this study.

In addition, the researcher believes that the informant of qualitative research may have small sample sizes, the possibility of bias in the answers, and bias due to self-selection. This is as a result of the informers in this research just including between different circle of friends but shops at BingoBox. The information provided by the informant has the same point of view and information, as shown by the result. The data obtained from the interview and questionnaire are less reliable when the sample size is small because this results in greater variability, which in turn can lead to bias.

Furthermore, qualitative research is a time consuming process. The biggest disadvantage of qualitative research is that it takes time. Another issue is that the interpretations are restricted. Observations and judgments are influenced by personal experience and knowledge. It takes researcher significant amount of time to wait in front of the store waiting for respondents when the store itself located at a non-strategic location which contribute to very few customers buying from the store.

5.6 RECCOMENDATION FOR FUTURE RESEARCH

Last but not least, the researcher would like to propose some ideas for further research in this specific study which is in unmanned technology. The primary intention of the researcher in conducting this study was to identify customer's perception and investigate the barriers that leads toward their intention to use BingoBox technology. There are various proposals or recommendations from researchers for future researchers who are interested in continuing with further in-depth research.

First and foremost, future researcher could use quantitative method instead to go on with this research. Quantitative research opens up more ways for researcher to obtain results. Instead of customer, future researcher can change it to consumer's perception where there are bigger sample size. By doing this, hopefully they can obtain more results from various background.

Besides that, this research also could be done or extended with different store at different location but with the same exact concept which is unmanned store. Since the last time researcher went on to study about BingoBox, there are another unmanned store that has been launched at a more strategic location.

Last but not least, future researcher could also investigate the potential solution that could help any aspiring business owners who are interested in opening unmanned stores in the future will receive assistance. It is hoped that this research would provide them with the knowledge necessary to successfully navigate the world of unstaffed retailers in Malaysia.

CONCLUSION

This study has highlighted the findings about customers' perceptions of BingoBox technology as well as the barriers that inhibit customers' intention to use it. Based on a literature review and qualitative interview data, this study identified four customer views of their purchasing experience via BingoBox Shop and four hurdles to the technology of the BingoBox store. This discussion demonstrates that the majority of customers have favourable opinions of BingoBox technology and are interested in using it. Additionally, this conversation suggests that usage and technology fear are the most glaring obstacles for customers to use BingoBox. The results are analysed using thematic analysis based on the transcription of an interview session with informants who are already BingoBox customers. Consequently, BingoBox store should pay attention to both customer perception and barriers so that they may continue to develop solutions to overcome the constraints. Consequently, the research demonstrated that it effectively meets the research objectives and responds to the research issue.

REFFERENCES

Adamovich, K. (2020, July 9). *The shopping of the future: 9 unmanned stores*. PaySpace Magazine. Retrieved May 17, 2022, from https://payspacemagazine.com/retail/the-shopping-of-the-future-8-unmanned-stores-2/

American Academy of Paediatrics. (2021). *COVID-19: Keep On Keeping Your Distance*. HealthyChildren.Org. Retrieved June 1, 2022, from https://www.healthychildren.org/English/health-issues/conditions/COVID-19/Pages/Social-Distancing-Why-Keeping-Your-Distance-Helps-Keep-Others-Safe.aspx

Abu Bakar. (2020, June 30). The Malaysian Approach for Advanced Technology. Retrieved January 22, 2023, from https://www.digitalnewsasia.com/entrepreneurial-nation/malaysian-approach-advanced-technology

A I, A. (2022). Review of Cashless Economy in Nigeria and the Challenges of Network Infrastructures. International Journal of Social Science and Human Research, 05(03). https://doi.org/10.47191/ijsshr/v5-i3-55

Arnone, M. P., Small, R. V., Chauncey, S. A., & McKenna, H. P. (2011). Curiosity, interest and engagement in technology-pervasive learning environments: a new research agenda. *Educational Technology Research and Development*, *59*(2), 181–198. https://doi.org/10.1007/s11423-011-9190-9

Bayern, M. (2019, September 13). *How AI can save the retail industry*. TechRepublic. Retrieved June 1, 2022, from https://www.techrepublic.com/article/how-ai-can-save-the-retail-industry/

Bhattacharya, S. (2022, July 15). Impact of consumer behaviour on technology trends. Retrieved January 22, 2023, from

https://timesofindia.indiatimes.com/blogs/voices/impact-of-consumer-behaviour-on-technology-trends/

Colorado State University Global. (2021, August 9). *How Does AI Actually Work?* Retrieved May 8, 2022, from https://csuglobal.edu/blog/how-does-ai-actually-work#:%7E:text=AI%20systems%20work%20by%20combining,performance%20and%20develops%20additional%20expertise.

Chen, S., & Li, J. (2010). Examining Consumers' Willingness to Buy in Chinese Online Market. *Journal of Computers*, *5*(5). https://doi.org/10.4304/jcp.5.5.815-824

Fadhiha, M. (2019). A CASHLESS SOCIETY: PERCEPTION OF MALAYSIAN CONSUMERS TOWARD THE USAGE OF DEBIT CARDS. *International Journal of Accounting, Finance and Business (IJAFB)*, *4*(21), 91–100. http://www.ijafb.com/PDF/IJAFB-2019-21-09-09.pdf

Haleem, A., Javaid, M., & Vaishya, R. (2020). Effects of COVID-19 pandemic in daily life. *Current Medicine Research and Practice*, *10*(2), 78–79. https://doi.org/10.1016/j.cmrp.2020.03.011

Halim, A. H. A., Yoong, S. W., Shik, M. S. A. M., Hamzah, J., Goon, F. W. K., Amin, M. F., Sebastian, L., Jaafar, N., Sayuti, Z., & Musa, N. F. (2014). *National Internet of Things (IoT) Strategic Roadmap*. MIMOS BERHAD.

Hong, T. H. (2018, November 2). *A visit to BingoBox unmanned convenience store in KL*. Mini Me Insights. Retrieved May 25, 2022, from https://www.minimeinsights.com/2018/11/02/a-visit-to-bingobox-unmanned-convenience-store-in-the-heart-of-kuala-lumpur/

IoT and AI Innovations for the Retail Industry : Technical Journal. (2017). NEC. Retrieved May 16, 2022, from https://www.nec.com/en/global/techrep/journal/g17/n01/170112.html

Jakkimohr, A. (2018, January 10). *Self-Service Check-Out Technologies: Comparison of Amazon Go and Alibaba Tao Café*. High-Tech & Innovation Marketing Blogs. Retrieved May 16, 2022, from https://jakkimohr.com/2018/01/09/self-service-check-out-technologies-comparison-of-amazon-go-and-alibaba-tao-cafe/

Keenan, M. (2021, October 5). *What Is RFID Technology and How Can I Use It?* Shopify. Retrieved May 17, 2022, from https://www.shopify.com/retail/rfid-technology

Kega, K. (2020). *The Rise of The Unmanned Store*. Retail Reality. Retrieved May 15, 2022, from https://www.kega.nl/en/news/retail-reality/the-rise-of-the-unmanned-store

Koeneman. (2019, April 9). 3 ways IoT is impacting retail. Retrieved January 22, 2023, from https://www.retailcustomerexperience.com/blogs/3-ways-iot-is-impacting-retail/

Lu, M. P., & Kosim, Z. (2022). An empirical study to explore the influence of the COVID-19 crisis on consumers' behaviour towards cashless payment in Malaysia. *Journal of Financial Services Marketing*. https://doi.org/10.1057/s41264-022-00182-9

Morgan, B. (2021, July 19). *Customers Don't Want The Technology Experiences Offered By Stores*. Forbes. Retrieved May 27, 2022, from https://www.forbes.com/sites/blakemorgan/2021/07/19/customers-dont-want-the-technology-experiences-offered-by-stores/?sh=2752f0a47b60

Mansoor. (2017, October 14). 6 Ways Technology Impacts Customer Thinking, Behavior, And Experience. Retrieved January 22, 2023, from https://customerthink.com/6-ways-technology-impacts-customer-thinking-behavior-and-experience/

Marquine Raymundo, T., & Silva Santana, C. D. (2014). Fear and the use of technological devices by older people. *Gerontechnology*, *13*(2). https://doi.org/10.4017/gt.2014.13.02.191.00

PRIME MINISTER'S DEPARTMENT. (2019). *NATIONAL FOURTH INDUSTRIAL REVOLUTION (4IR) POLICY* (Revised ed., Vol. 2). ECONOMIC PLANNING

UNIT, PRIME MINISTER'S DEPARTMENT. https://www.epu.gov.my/sites/default/files/2021-07/National-4IR-Policy.pdf

Shen, T. (2020, June 7). *BingoBox unveils new AI tech for its unmanned stores*. TechNode. Retrieved May 25, 2022, from https://technode.com/2017/09/28/bingobox-unveils-new-ai-tech-for-its-unmanned-stores/

Sheth, J. (2019, April 22). *Consumer Resistance to Innovations: The Marketing Problem and its Solutions*. Jagdish Sheth. Retrieved June 1, 2022, from https://www.jagsheth.com/consumer-behavior/consumer-resistance-to-innovations-the-marketing-problem-and-its-solutions/

Sharon. (2018, September 18). How Malaysia can embrace technological change the right way - OpenGov Asia. Retrieved January 22, 2023, from https://opengovasia.com/how-malaysia-can-embrace-technological-change-the-right-way/

Tagwerker-Sturm, M. (2022, April 11). *Unmanned 24/7 Stores - An Overview of Concepts and Technologies*. Shopreme. Retrieved May 9, 2022, from https://www.shopreme.com/blog/unmanned-24-7-stores-an-overview-of-concepts-and-technologies/

Ting, B. M. (Ed.). (2021). Cashierless Technology at Grocery Stores: An Imminent Step towards Safer and Smarter Shopping in Penang. In *Penang Institute Issues* (2nd ed., pp. 2–9). Penang Institute Org. https://penanginstitute.org/wp-content/uploads/2021/11/Cashierless-Technology-at-Grocery-Stores.pdf

Walton, C. (2022a, March 2). *5 Reasons Why Amazon Go Is Already The Greatest Retail Innovation Of The Next 30 Years*. Forbes. Retrieved May 9, 2022, from https://www.forbes.com/sites/christopherwalton/2022/03/01/5-reasons-why-amazon-go-is-already-the-greatest-retail-innovation-of-the-next-30-years/?sh=645010b11abc

Walton, C. (2022b, March 2). *5 Reasons Why Amazon Go Is Already The Greatest Retail Innovation Of The Next 30 Years*. Forbes. Retrieved May 17, 2022, from https://www.forbes.com/sites/christopherwalton/2022/03/01/5-reasons-why-amazon-go-is-already-the-greatest-retail-innovation-of-the-next-30-years/?sh=645010b11abc

Writer, S. (2022, May 30). *Study shows half of Hong Kong consumers prefer unmanned stores*. Retail in Asia. https://retailinasia.com/featured/study-shows-half-of-hong-kong-consumers-prefer-unmanned-stores/

Wood, S. (2020, October 26). A Positive Buying Experience Is Crucial for Customer Happiness. Retrieved January 22, 2023, from https://learn.g2.com/buying-experience

Wang, I. C., Liao, C. W., Lin, K. P., Wang, C. H., & Tsai, C. L. (2021). Evaluate the Consumer Acceptance of AIoT-Based Unmanned Convenience Stores Based on Perceived Risks and Technological Acceptance Models. *Mathematical Problems in Engineering*, *2021*, 1–12. https://doi.org/10.1155/2021/4416270

Xu, J., Hu, Z., Zou, Z., Zou, J., Hu, X., Liu, L., & Zheng, L. (2020). Design of Smart Unstaffed Retail Shop Based on IoT and Artificial Intelligence. *IEEE Access*, *8*, 147728–147737. https://doi.org/10.1109/access.2020.3014047

APPENDICES

APPENDIX 1: GANTT CHART FOR FINAL YEAR PROJECT 1

Week / Activities	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
FYP 1 Briefing																
Supervisor Distribution																
Topic Selection																
Journal Selection																
Chapter 1																
Chapter 2																
Chapter 3																
Proposal Submission																
Preparation																
Presentation																
Proposal Amendment																
Final Proposal																

APPENDIX 2: GANTT CHART FOR FINAL YEAR PROJECT 2

Week / Activities	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Completion of Questionnaire construction																
Data collection through interview																
Data Analysis																
Write up Chapter 4 : Finding and Analysis																
Write up Chapter 5 : Conclusion and Recommendation																
Turnitin and report amendment																
Final draft submission																
Slide Preparation																
Presentation																
Final amendment. Format adjustment and document compilation																
Report Submission																

APPENDIX 4: QUESTIONNAIRE

QUESTIONAIRE

1.3 RESEARCH QUESTION

Since this research are developed to better understand the perception and barriers towards unmanned store in Malaysia, the research question that has been gathered are:

III. What are customer's perception on BingoBox Technology?

IV. What are the barriers towards unmanned store that leads towards customer's intention to use them?

1.4 RESEARCH OBJECTIVE

The general purpose on why this research being done in the first place is to explore the perception and barriers toward unmanned store in Malaysia. Hence, the objective of this study are to:

III. To identify how customer's perception on their buying expectation via unmanned store technology.

IV. To investigate the barriers towards unmanned store that leads towards customer's intention to use them

INFORMER

Section	Question
Section A: Introduction	Ask informer to introduce and explain about themselves briefly. (Name, age, level of education, occupation)
Section B: Introduction	i. Where or how do you know about the existence of BingoBox? ii. What types of goods do you buy at the Bingobox store? iii. Are you satisfied with the services that has been offered by Bingobox technology?
Section C: BingoBox Technology	i. What do you think of unmanned technology adoption in retail store? Does it make the whole buying experience different? ii. Do you feel that it is easier to use unmanned technology then going to the physical store? If so, what could be the reasons that contribute to it? iii. Are the price of goods in Bingobox, according to you, are relatively cheaper compared to those in physical store? iv. How about the customer service offered? v. Do you have any concerns or doubts regarding the technology of BingoBox that are made from China? Is it on par with the technology that are from another country like Japan or etc? vi. Regarding the security aspect, do you feel safe using Bingobox technology?
Section D: Suggestion	i. In your opinion, what would you think are the most noticeable barriers for consumer in Malaysia to use BingoBox technology? Is it the usage, security or any other example? ii. How to make consumer gain more trust for them to start using this unmanned technology?

Interviewer: Nurhanies Binti Mohd Abidi

Participant: Nur Hanees binti Mohd Ramlee

Date of Interview: 11 september 2022

Location of Interview: Infront of BingoBox store.

Interviewer: Assalamualaikum, nama saya Nurhanies binti mohd abidi. Saya nak mintak sedikit masa cik untuk bertanya soalan berkenaan dengan BingoBox. Rasa-rasa, cik ada masa tak?

Participant: Waalaikumsalam, boleh je nak tanya. Sekarang ni pun tengah free.

Interviewer: Okay, okay. Err boleh tak perkenalkan nama, umur, level of education, dekat mana belajar apa semua ataupun occupation?.

Participant: So, nama saya Nur Hanees binti Mohd Ramlee, Umur 22 tahun. Umm, saya belajar dekat Utem Melaka. Ermmm pekerjaan saya, saya buat part time Grab.

Interviewer: Ermm okay, saya mulakan dulu dengan soalan introduction soalan pengenalan. Okay, pertama sekali macam mana cik boleh tahu tentang kewujudan BingoBox ini?

Participant: Macam mana saya tahu kewujudan BingoBox ni bila saya pernah buat Grab dekat area KL. Tiba-tiba saya nampak store ni macam dekat tengah-tengah bandar lah, tapi macam unik store nis ebab dia tak pakai orang apa semua. So, situlah saya tahu.KL. Macam dekat tengah-tengah KL

Interviewer: Cik pernah beli apa-apa tak dari BingoBox. Macam try masuk dan beli apa-apa dari BingoBox?

Participant: Pernah. Saya pernah masuk dalam BingoBox and pernah cuba beli makanan-makanan ringan.

Interviewer: Jadi, jenis barangan apa yang cik selalu beli dekat dalam? Macam tadi cik kata makanan ringan. Lagi?

Participant: Mmm makanan ringan…dalam BingoBox tu dia lebih kurang macam 7e lah orang kata. Ada makanan-makanan ringan.

Interviewer: Aaahhh….Okay, seterusnya. Setakat cik dah guna BingoBox store ini, cik berpuas hati tak dengan servis yang diberikan, dioffer oleh BingoBox ni?

Participant: Mmm…bagi pendapat saya, saya berpuas hati dengan servis yang diberikan. Dia guna teknologi yang tak ada dekat Malaysia.

Interviewer: Aaahh….

Participant: Means ummm dia humanless, dia macam kedai yang tak ada orang jaga and semua pakai teknologi. So apa-apa berkaitan teknologi. Nak masuk kedai kena QR apa benda semua macam tulah.

Interviewer: Aaahh, baik. Sekarang kita bergerak pula ke soalan berkenaan teknologi bingoBox itu sendiri. Okay, apa yang cik rasakan tentang adoption unmanned technology ni dalam retail store? Rasa-rasnya macam ada perubahan tak dalam cik punya whole buying experience?

Participant: Sangat berubah. Sebab biasa kita pergi kedai ke apa, kita boleh bayar guna cash ataupun e-wallet apa semua. Tapi dekat BingoBox ni memang kena pakai apps, pembayaran boleh pakai Boost, e-wallet, Grab apa benda semua. So memang lain sangat lah orang kata.

Interviewer: Saya faham. Baik, soalan kedua pula, cik rasa lebih senang atau tak guna unmanned technology ni berbanding Physical store? Kalau ya, boleh cik beri sebab atau input kenapa?

Participant: Bagi saya, dia ada dua tau. Kalau untuk orang muda, sangat mudah. Sebab orang muda zaman sekarang ni orang kata dalam society yang cashless so dia memang akan gunakan teknologi tu. Tapi, kalau untuk orang yang umur like tua-tua sikit macam tak tau nak guna telefon tu, dia macam susah sikit. Susah bagi diorang untuk terima teknologi baru tu. Dia macam boleh terima tapi tak tahu macam mana nak guna.

Interviewer: Hmmm baik. Berkenaan dengan harga pula. Adakah cik rasa dekat dalam BingoBox, harga barangan adalah lebih murah berbanding dengan harga contohnya physical store macam 7e ke?

Participant: Bagi saya, harga dekat BingoBox ni, harga lebih kurang je. Dia takdelah orang kata lebih murah atau lebih mahal dari physical store. Walaupun BingoBox ni guna teknologi yang tinggi, harga dia still sama dengan physical store, so tak ada perbezaan sangatlah dekat harga tu.

Interviewer: Baik-baik. Aahh macam mana pulak customer service atau khidmat pelanggan yang diberikan oleh BingoBox store ini sendiri?

Participant: Customer service ek… dekat sana tu dia memang orang kata humanless store so kalau apa-apa jadi dekat dalam memang ada disediakan satu butang interkom untuk just in case anything happen lah macam tu.

Interviewer: Okay..Ini berkenaan dengan imej pulak. Macam yang kita tahu BingoBox ni adalah kedai yang menggunakan teknologi dari China, so bagi cik, cik rasa teknolohi yang datang dari China ni on par tak dengan teknologi dari Jepun, US atau sebagainya?

Participant: Bagi saya, teknologi dia tu memang dah orang kata.. dah majulah. Sebab dekat Malaysia pun takde teknologi tu lagi. Paling tak pun teknologi dekat Malaysia ni pun ada self service kiosk. So kalau nak dibandingkan dengan negara-negara lain pun, bolehlah dikatakan setanding dengan Amazon Go.

Interviewer: Okay, soalan seterusnya. Berkenaan dengan aspek security atau keselamtan pula. Cik rasa selamat tak guna teknologi BingoBox setakat ini?

Participant: Mmmmm bagi pandangan saya, kalau kita tengok daripada sudut luaran, kita rasa macam tak selamat. Tapi once kita dah masuk dalam tu, aaaa.. security dia tu memang cctv merata. Lepas tu nak keluar masuk kedai tu pun nak kena scan, sebab saya pun ada pengalaman masuk kedai tu kan, nak keluar nak masuk memang dia jaga lah. So, bagi saya security kedai ni so far so good lah.

Interviewer: Baik, sekarang kita bergerak ke section seterusnya pulak. Mengikut pandangan cik, apa yang cik boleh nampak menjadi halangan kepada mereka did alam Malaysia ni untuk gunakan teknologi BingoBox ni? Macam berkaitan usage ke, security ke ataupun contoh lain?

Participant: mmmmm bagi pendapat saya lah, apa halangan bagi rakyat Malaysia ni untuk gunakan BingoBox ni sebab tak semua orang dalam Malaysia pandai menggunakan teknologi baru. So, macam kalau orang muda diorang sangat pandai download apps lah bagai. Tapi untuk orang-orang tua agak susahlah. Kadang-kadang orang-orang tua ni nak masuk kedai scan Mysejahtera pun diorang tak reti. So bila nak gunakan teknologi maju macam ni diorang jadi macam kena tanya orang dulu baru boleh guna. Aaaa…so itulah halangan dia.

Interviewer: Okay, soalan terakhir dari saya. Apa yang boleh dilakukan oleh BingoBox untuk gain more trust atau raih kepercayaan orang ramai untuk guna teknologi kedai ni?

Participant: Untuk saya, kalau diorang nak banyakkan lokasi untuk lagi ramai orang guna BingoBox ni, dia perlu banyakkan lokasi dia. Sebab nak katakan location dia tu, memang dekat tengah-tengah bandar tapi dia agak tersorok. Dia patut banyakkan lagi lokasi so bila orang ramai selalu nampak, diorang pun akan mula gunakan teknologi ni. Last-last orang akan gunakan dengan sendirinya BingoBox ni. Sebab anak-anak muda akan lebih tertarik dengan teknologi baru. Bila diorang dah tahu dan cuba, mesti diorang akan viralkan. Dan tu jugak membantu orang lain untuk cuba guna teknologi BingoBox ni.

Interviewer: Baiklah, sampai setakat ini sahaja interview saya untuk cik Hanees. Terima kasih banyak-banyak atas masa yang telah diluangkan untuk menjawab soalan daripada saya.

Participant: Sama-sama.

Interviewer: Nurhanies Binti Mohd Abidi

Participant: Nurul Husna Binti Mursyidi

Date of Interview: 11 September 2022

Location of Interview: Infront of BingoBox

Interviewer: Hi, my name is Nurhanies binti Mohd Abidi. I would like to have some of your time to ask few questions regarding BingoBox store. Can first you introduce yourself. Your name, age, education or your occupation.

Participant: Hi my name is Nurul Husna. I'm 23 years old and my level of education is diploma and I'm a student.

Interviewer: Is it okay if we use both malay and english?

Participant: Yeah, sure!

Interviewer: If you're comfortable then okay. We can start with the first question. For the introduction question, what type of goods do you usually buy at BingoBox?

Participant: Ah…usually I buy drinks and also snacks.

Interviewer: Okay…next, where and how do you know about the existence of BingoBox? Through mutuals or anywhere else?

Participant: Well actually the first time I know about the existence of the BingoBox is ahh when I was jogging around Bukit Bintang, I was feeling dehydrated so, I walk around to look for an convenience store then I found the BingoBox store. So I try it.

Interviewer: Ahhh okay, okay. Next, are you satisfied with the services that are provided by the BingoBox?

Participant: Mmmm…yes and no.

Interviewer: Could you explain a bit?

Participant: It's a yes because usually they have my favourite drinks (chuckle) and it's a no because it is quite troublesome to use the apps cause sometimes I don't have any access to the internet. So yeah…

Interviewer: Ahh okay okay. Moving on to the section C, I'm going to ask you more about BingoBox technology. For the first question, what do you think of unmanned technology adoption in retail store? Does it make the whole buying experience different?

Participant: Ummm I think the idea to make the retail store is good but to implement it, it might come across as culture shock for the community….and for me, it does make the whole buying experience different.

Interviewer: So, for the next question, do you think it is easier to use unmanned technology then going to the physical store? If so, what could be the reasons that contribute to it?

Participant: Urgh….I think its not easier to use unmanned technology. I think the physical store is better because I like it better when someone doing the checking out things.

Interviewer: Oohhh, instead of you doing it yourself, you prefer more if someone handling it for you.

Participant: Yes, exactly!

Interviewer: ahhhh okay, okay. I get it. Now, for the third question, are the prices of goods in BingoBox according to you are relatively cheaper compared to those in physical store?

Participant: Urmm, no. I think physical store is much cheaper. I think its because of the tax.

Interviewer: If you need to give some comparison, so the physical store are much cheaper lah then going to the BingoBox store?

Participant: Yeah, yeah, physical store is cheaper. The price for the BingoBox is like 7e you know. So pricey.

Interviewer: I get it….next how about the customer service offered? Is there anything there that could help you if you ever encountered any problems or anything?

Participant: I'm not sure because I have never experience any sorts of difficulties that need me to use the customer service but there is a section to ask for help in the app. So yeah, Im not sure about that.

Interviewer: ummm.. okay, for the next question, do you have any concern or doubt regarding the technology of BingoBox since they are technology made in China. Is it on par with the technology from another country like Japan, United State or etcetera?

Participant: Umm no, not really. I don't have any doubts. Its just easy to use and I think all technology are the same, it doesn't matter where it is from.

Interviewer: Hmmm even if its from China, Japan, it still the same regardless.

Participant: Yes, for me it is still the same.

Interviewer: I get it. For the last question of this section, regarding the security aspect, do you feel safe using BingoBox technology?

Participant: ahhhh, I don't feel really safe. That one time I was trap inside and could not open the door. The app were malfunctioning I think. Thankfully, it worked before I need to press the emergency button there.

Interviewer: Hahaha, that's an interesting one. Alright, for the last section which is more like suggestion from your side. In your opinion, what are the most noticeable barriers for consumer in Malaysia to use BingoBox technology? Is it the usage? Security? Or any other example?

Participant: I think the most noticeable barrier is the usage because in order to enter the BingoBox, you have to use the app. And in order to use the app, you need a smartphone. And when you have a smartphone, you need to have access to the internet. Generally speaking, not everyone have an access to smartphones especially the elderly.

Some of them still use the Nokia phone way back from zaman batu (chuckle). So yeah…. The app also need internet to use so it makes it not easily accessible to everyone.

Interviewer: Hmm, okay. Next for the last question, from your opinion, how to make consumer gain more trust to finally start using this unmanned technology?

Participant: Mmmm, I think they need more exposure and reviews by the public and maybe put the BingoBox near somewhere near pedestrian usually go by, or LRT stations. Cause right now, the BingoBox store located in the middle between two condominium in a neighbourhood.

Interviewer: ahhh, so they need to also improve more on the location.

Participant: Yeah, they do.

Interviewer: So that conclude our interview for today. Thank you so much Miss Husna for your time and contribution. Hope you have a great day ahead.

Participant: Thank you

Interviewer: Nurhanies binti Mohd Abidi

Participant: Kiki Anijam

Date of Interview: 20 September 2022

Location of Interview: Whatsapp Voice Call.

Interviewer: Assalamualaikum, nama saya Nurhanies Binti Mohd Abidi. Saya pelajar dari Universiti Teknikal Malaysia Melaka. Saya nak ambil sedikit masa cik untuk bertanyakan soalan mengenai BingoBox store. Ini semua untuk tujuan menyelesaikan tugasan tahun akhir saya. Jadi kalau cik ada masa, boleh cik bersetuju dengan temu ramah ini?

Participant: Waalaikumsalam, boleh. Teruskan.

Interviewer: Boleh cik perkenalkan nama, umur, tahap pendidikan ataupun pekerjaan cik sekarang?

Participant: Nama saya Kiki, saya berusia 23 tahun dan saya bekerja sebagai Dental Surgeon Assistant.

Interviewer: Okay, untuk soalan seterusnya. Saya nak tanya, apakah jenis barangan yang cik beli di BingoBox?

Participant: Biasanya saya akan pergi ke BingoBox untuk membeli barang-barang keperluan seperti minuman dan beberapa snack makanan kerana jarak rumah saya dan ke tempat menunggu bas adalah sedikit jauh. Saya pulak jenis yang banyak minum air jadi saya akan pergi ke BingoBox untuk membeli air sambil-sambil perjalanan saya ke stesen menunggu bas.

Interviewer: Seterusnya, macam mana cik boleh tahu tentang kewujudan BingoBox ni? Daripada kawan ke? Ataupun terserempak? Bagaimana?

Participant: Ermmm, saya mengetahui tentang BingoBox ni daripada rakan serumah saya di mana satu hari tu dia pergi dan dia balik rumah dan bagitahu saya ada satu

convinience store berhampiran rumah kitorang . Jadi on the way ke tempat kerja tu saya ada lalu dan nampak BingoBox and saya pun try gunakan.

Interviewer: Baiklah, setakat cik pernah pergi ke BingoBox, cik berpuas hati tak dengan servis yang dioffer, diberikan oleh BingoBox?

Participant: Ahh setakat ini, saya masih berpuas hati dengan servis yang diberikan sebab ianya agak convinient lah jugak. Ia lebih menjimatkan masa.

Interviewer: Beralih kepada section seterusnya, saya akan bertanyakan soalan lebih ke arah teknologi BingoBox. Okay, yang pertama, apa yang cik rasakan tentang implementation teknologi unmanned ni terhadap retail store? Adakah buying experience cik berubah?

Participant: Ok, bagi saya, saya rasa macam BingoBox boleh membawa impak perubahan yang besar lah dekat Malaysia kerana dia lebih mesra pelanggan sebab tak ada pekerja. Jadi, kita tak perlu berhadapan dengan individu ke dua. Dan ia juga memberi perubahan kepada saya, kerana sya bukan seseorang yang suka tempat yang crowded dan saya juga tidak suka untuk have any contact with other people. So, its a good thing untuk orang-orang yang introvert seperti saya.

Interviewer: Ahhh begitu….okay, okay. Seterusnya, saya nak tanya pulak, adakah cik rasa lebih senang menggunakan unmanned technology daripada pergi ke kedai physical? Kalau ya, boleh cik berikan beberapa sebab?

Participant: Okay bagi yang ini, saya rasa ianya mudah untuk orang-orang muda seperti saya sebab kita hanya perlukan handphone untuk scan dan membayar. Tapi, untuk golongan-golongan yang lebih berusia, saya rasa benda tu akan sedikit melecehkan sebab tak semua orang-orang yang berusia pandai menggunakan handphone untuk scan, membuat pembayaran secara online. So saya rasa dis ini ada pros dengan cons dia lah jugak.

Sebab tak semua orang pandai menggunakan teknologi, tapi untuk golongan-golongan muda yang tidak terlalu berusia seperti saya, ianya amatlah convenient untuk menggunakan BingoBox yang mempunyai pekerja. Especially those yang always rushing. Sebab kalau kita tengok retail store yang mempunyai perkerja

dekat luar sana, mesti akan barisan just untuk membuat pembayaran. Sekarang dah tak perlu tunggu lagi.

Interviewer: Ahhhh saya nampak, saya nampak. Okay, bagaiman pulak dengan harga-harga barangan di BingoBox. Menurut cik adakah ianya lebih murah jika nak dibandingkan dengan harga brangan-barangan di kedai physical di luar sana?

Participant: Kalau nak dibandingkan dengan convinience store yang lain, saya rasa dalam aspek harga ni tak adalah berbeza sangat. Mungkin beza pun dalam beberapa sen je. Jadi saya rasa dalam bab harga ni memang tak ada beza sangat lah.

Interviewer: Okay, bagaiman pulak dengan khidmat pelanggan yang diberikan?

Participant: Buat masa sekarang ni saya tak pernah lagi ummm mendapatkan apa-apa lagi layanan customer service sebab saya tak pernah ada masalah denagn pembelian yang saya buat di BingoBox. Jadi, saya rasa untuk masa sekarang ni saya tak pernah tahu lagi macam mana customer service diorang.

Interviewer: Baik, untuk soalan seterusnya. Adakah cik mempunyai concern atau doubt bila menggunakan teknologi BingoBox? Kita sedia maklum BingoBox merupakan teknologi daripada negara China, jadi adakah bagi cik teknologi dari negara China setaraf dengan negara-negara maju lain seperti Jepun, America dan sebagainya?

Participant: Saya memang tak pernah ada any concern or doubt about produk-produk dari China sebab seperti yang kita semua tahu China ni adalah sebuah negara yang sangat maju. Jadi apa-apa produk yang dikeluarkan oleh negara China ni memang sangat bagus dan boleh dipercayai. Sebenarnya bila kita tengok negara China ni, dia tak jauh beza pun tahap kemajuan dia dari negara Jepun, jadi saya tak pernah doubt atau ada rasa musykil dengan produk atau teknologi yang datang dari negara China.

Interviewer: Beralih kepada aspek keselamatan, adakah cik rasa selamat ketika menggunakan BingoBox ini?

Participant: urmm dari segi keselamatan security untuk sistem adalah sangatlah bagus, saya rasa ok je. Tapi bila masuk ke dalam kedai pulak, adalah pros and cons dia. Like if anything happen inside the store, or bila terperangkap dalam store, orang luar takkan tahu dan kita hanya boleh rely on interkom yang ada dalam kedai sahaja.

Interviewer: Agak leceh jugak ya.

Participant: Kadang-kadang kita tak boleh elak kalau terjadi benda-benda tak diingini macam tu kan.

Interviewer: Betul tu. Baiklah, untuk section terakhir soalan saya, apakah halangan yang paling cik dapat lihat untuk pengguna-pengguna di Malaysia untuk menggunakan BingoBox ni. Adakah dari segi penggunaan, sekuriti atau contoh-contoh lain?

Participant: hmmm untuk halangan, saya rasa halangan nya adalah bukan semua orang pandai untuk menggunakan teknologi, seperti apa yang saya katakan di awal soalan tadi. Dan saya rasa BingoBox ni hanya mampu digunakan oleh orang-orang yang lebih muda berbanding dengan warga-warga emas dan golongan yang lebih berusia. Ini akan melecehkan mereka. Lagi-lagi sewaktu membuat pembayaran, ada barcode yang perlu discan. Keluar masuk pun memerlukan kita menggunakan apps.

Interviewer: Okay, akhirnya kita akan bergerak ke soalan terakhir. Bagaimanakah cara untuk menarik pengguna-pengguna di Malaysia untuk mula menggunakan unmanned technology?

Participant: Bagi pendapat saya, cara yang saya rasakan efektif untuk orang ramai menggunakan unmanned technology ni adalah dengan mengajar mereka. Mungkin kita boleh buat kelas untuk golongan berusia ni macam mana untuk navigate through apps, cara gunakan scanner dan sebagainya. Ataupun kit aboleh mengalakkan lagi kempen cashless supaya orang ramai terbuka untuk cuba menggunakan unmanned store seperti BingoBox.

Interviewer: Akhirnya dengan ini, tamatlah sudah sesi temubual atau interview kita. Terima kasih banyak-banyak Cik Kiki kerana dah meluangkan masa untuk menjawab

soalan-soalan berkenaan dengan BingoBox dan juga pengalaman cik menggunakannya.

Participant: Sama-sama. Saya berbesar hati dapat membantu cik juga.

Interviewer: Nurhanies Binti Mohd Abidi

Participant: Muhammad Aliff Najmi bin Md Noor

Date of Interview: 23 September 2022

Location of Interview: Whatsapp Voice Call

Interviewer: Assalamualaikum, nama saya Nurhanies binti Mohd Abidi. Saya merupakan pelajar tahun akhir Fakulti Pengurusan Teknologi dan teknousahawan dari Universiti Teknikal Melaka. Kalau boleh, saya ingin meminta sedikit masa Untuk menjawab beberapa soalan dari saya berkenaan BingoBox store.

Participant: Sure, few question won't hurt. Tak apa kan kalau saya gunakan bahasa melayu dengan english untuk jawab soalan?

Interviewer: Boleh, tak ada masalah. Okay, baiklah. Boleh encik perkenalkan nama, umur, tahap pendidikan ataupun pekerjaan encik sekarang?

Participant: Nama saya Muhammad Aliff Najmi, I am 23 years old. Currently, saya sedang melanjutkan diploma in Game design and animation di Management and Science University. Dalam masa yang sama juga saya bekerja sebagai Front of house crew service di Universal Bakehouse in Damansara Kim.

Interviewer: Saya mulakan temubual kita dengan soalan pengenalan berkenaan dengan pengalaman encik mengenai BingoBox. Soalannya ialah, apakah jenis barangan yang biasanya atau pernah dibeli oleh encik di BingoBox?

Participant: To be honest, ini baru kali ketiga I went to this store and setakat ni I only bought drinks and snacks.

Interviewer: Aah…ada barangan lain juga ke yang dijual selain drinks dan makanan ringan?

Participant: ummmm, setakat yang saya ingat memang snacks and drinks je available dalam BingoBox.

Interviewer: ohhh baiklah. Seterusnya saya nak bertanya bagaimana encik boleh tahu kewujudan BingoBox? Dari rakan-rakan? Iklan?

Participant: I know about BingoBox ni actually when me and my friend on our way to Haji Lane untuk tengok mural-mural yang ada dekat situ. Memandangkan nak berjalan dalam KL ni agak memenatkan, we stop sekejap dekat BingoBox untuk beli air before moving on to our destination.

Interviewer: ohhhh begitu. Kiranya memang betul-betul kebetulan lah.

Participant: Yup, kedai ni pun ada dekat tengah-tengah kondo. I don't think people would notice it kalau bukan sebab terserempak.

Interviewer: Okay, untuk soalan seterusnya pula. Walaupun ini kali kedua encik berbelanja di BingoBox, adakah encik berpuas hati dengan servis yang diberikan oleh BingoBox technology?

Participant: As on now, saya rasa servis yang diberikan okay je Just like convinience store, minus the interaction between people and also cashless.

Interviewer: Nice, moving on to the next question. Apa yang encik rasa tentang implementation or adoption of unmanned technology dalam retail store? Adakah pengalaman membeli encik berubah?

Participant: Adoption of unmanned store in retail store ek…I think it's a great idea since Malaysia are clearly moving towards modernization. Kita pun tak perlu nak bawak cash merata-rata. In case of emergency, just bring your phone or card with you.

Kalau bab buying experience, agak berubah lah. Its not like berubah totally sebab kita masih ada self-service kiosk. Tapi mungkin sebab tak ada orang nak assist kita waktu membeli. So like that lah…

Interviewer: Bagaimana pula dengan penggunaan unmanned technology? Adakah lebih mudah menggunakan unmanned technology daripada pergi ke kedai fizikal? Kalau ya, apakah sebab yang encik boleh berikan?

Participant: Tak boleh nafikan usage of unmanned technology memang lebih mudah from fizikal store. Tak payah nak fikir berapa banyak masa kita guna untuk pilih barang. And alsooo tak payah susah nak seluk bag carik duit syiling hahahaha.

Tapi on a serious note, unmanned memang sangat memudahkan.

Interviewer: From the price point pula, adakah barang-barang di BingoBox lebih murah berbanding dengan barang-braangan yang ada di physical store?

Participant: Lebih murah saya rasa di physical store macam Speedmart. Tapi untuk convinience store, harga memang lebih kurang harga 7e which is saya rasa agak mahal lah. Mungkin sebab dekat neighbourhood tengah-tengah KL, target market is leaning more towards foreigner??? Itulah apa yang saya rasa.

Interviewer: Bagaimana pulak dengan khidmat pelanggan di BingoBox?

Participant: Khidmat pelanggan ehhhhh…oh, saya ada perasan ada satu button kecemasan dekat situ. But yeah, like what I said just now, ini baru second time guna, tak perlu lagilah tekan butang bantuan tu. But its good that they put it there. Easier for those yang ada masalah untuk mintak tolong.

Interviewer: Kebimbangan itu selalu ada. Jadi saya nak tanya, selama encik membuat pembelian di BingoBox, ada atau tidak rasa concern atau doubt bila menggunakan teknologi BingoBox? Teknologi BingoBox adalah dari China, adakah encik rasa teknologi dari China on par dengan teknologi dari negara maju Jepun, America atau negara-negara lain.

Participant: Barangan dari China I think memang ada bad reputation, but teknologi, I think setanding je dengan negara maju lain. Most of big companies use technology from China like Apple.

Interviewer: Aspek sekuriti pula, adakah encik rasa selamat menggunakan BingoBox?

Participant: Selamat je. Dorang tak minta further information like IC number ke apa. So feel safe je.

Interviewer: ahhhhhh okay. Kita beralih kepada section terakhir. This is more like suggestion from your side lah. Okay. Bagi pendapat encik apakah halangan atau barriers that is most noticeable tentang BingoBox ni? Dari segi usage ke, sekuriti? Atau contoh lain?

Participant: Noticeable barrier I think yang paling noticeable is actually the usage lah. Orang muda macam kita memang senang nak navigate through apps apa semua. Kita sendiri pun nak guna apps kena belek satu-satu, bayangkan orang tua pulak. Guna phone je agak terkial-kial.Memang agak susah lah dekat situ.

Next maybe location dia. Dekat tengah-tengah kondominium, memang orang tak nampak dari jauh. Kena masuk celah-celah dulu baru perasan Patut letak dekat dengan lrt ke apa. Kan more noticeable.

Interviewer: Oh, itu pandangan encik. Baiklah, untuk soalan terakhir pula, bagi encik bagaimana kepercayaan pengguna dapat diraih supaya mereka boleh mula mula menggunakan unmanned technology?

Participant: Gaining more trust….saya rasa we need to start from the apps itself. Mula buat interface yang tak merumitkan. I mean, make it more age friendly so that orang berumur pun dapat cuba gunakan teknologi unmanned ni. Alsoooo, spreading awareness could help a long way on how people should not be scared to use new technology. Start embracing it and maybe Malaysia are capable tom adopt unmanned technology to a lot of retail store.

Interviewer: Very insightful suggestion. Okay, ini bermakna temubual kita sudah tamat di sini. Terima kasih banyak-banyak encik Aliff atas jawapan dan input yang diberikan. Semoga encik menjalani hari-hari yang baik.

Participant: You are welcome. Hope your project are going well too.

Interviewer: Nurhanies binti Mohd Abidi

Participant: Nurul Aiman Binti Mohd Rahim

Date of Interview: 24 September 2022

Location of Interview: Whatsapp voice call

Interviewer: Oh, assalamualaikum cik Aiman. Maaf saya dah buat cik menunggu.

Participant: Waalaikumsalam. Eh, its okay. Marilah duduk.

Interviewer: Okay, boleh saya mulakan temubual kita? Cik bebas untuk guna bahasa melayu atau English untuk jawab soalan saya.

Participant: Ahhh, baik-baik.

Interviewer: Pertama sekali, boleh cik perkenalkan nama, umur, tahap pendidikan ataupun pekerjaan cik sekarang?

Participant: Baik, nama saya Nurul Aiman Binti Mohd Rahim, saya berumur 23 tahun. Saya masih melanjutkan pelajaran di dalam Bachelor Degree di Kolej Universiti Poly-Tech MARA Kuala Lumpur. And also currently saya baru habis menjalankan internship di OCBC Bank in HR Department.

Interviewer: Untuk soalan pertama dari saya bagi memulakan temu bual ini, saya nak tanya, macam mana cik boleh tahu tentang kewujudan kedai BingoBox? Dari rekomendasi rakan-rakan? Iklan? Sosial media?

Participant: Oh, saya boleh jawab dengan jujur kan?

Interviewer: Boleh cik Aiman, tak ada masalah.

Participant: Saya tahu kewujudan BingoBox daripada cik Hanies sendiri hehehe. Cik Hanies ada minta pertolongan saya untuk ditemubual berkenaan BingoBox Store. Saya pun setuju dan pergi sendiri untuk lihat bagaimana BingoBox berfungsi dan juga mencuba teknologi nya.

Interviewer: Semasa cik mencuba dan berbelanja di BingoBox, apakah jenis barangan yang dibeli?

Participant: Disebabkan saya ke sana untuk cuba sahaja, saya pun beli sebotol air mineral saja.

Interviewer: Semasa cik menggunakan BingoBox, adakah cik berpuas hati dengan khidmat atau servis yang diberikan oleh mereka? Memudahkan atau tidak proses cik untuk melakukan pembelian?

Participant: Macam yang saya kata tadi, ini merupakan pembeliaan pertama saya dan apa yang yang saya dapat lihat mengenai servis yang disediakan BiungoBox adalah saya agak berbelah bahagi.

Interviewer: Oh? Berbelah bahagi macam mana ya cik? Boleh jelaskan dengan lebib lanjut?

Participant: Maksud saya berbelah bahagi adalah macam ada beberapa servis yang sya berpuas hati dan tak berpuas hati. Contohnya dari segi pembayaran. Saya berpuas hati dengan cara pembayaran yang disediakan BingoBox. Saya boleh saja gunakan debit card dan scan, dan kalau saya lupa bawa kad debit, saya boleh gunakan apps e-wallet macam Boost dengan Grab pay. Memang sangat memudahkan.

Interviewer: Yang cik tak puas hati pula?

Participant: Yang saya tak berapa nak berpuas hati tu bila nak masuk sendiri ke dalam kedai BingoBox. Bila saya dengar dari cik Hanies berkeanaan dengan teknologi ‘unmanned store, BingoBox, saya mengharapkan teknologi yang smooth seperti Amazon Go, at least. Tapi bila sampai sendiri di sana, untuk scan sahaja dah ambil masa yang agak lama baru pintu terbuka. Proses yang agak menyusahkan bagi saya.

Interviewer: Oh begitu... Baiklah, tadi cik dah menceritakan sedikit pengalaman cik sewaktu menemui dan menggunakan BingoBox, sekarang saya nak bertanya pula soalan yang lebih tertumpu kepada teknologi BingoBox itu sendiri.

Participant: Boleh.

Interviewer: Okay, yang pertama, apa yang cik rasakan tentang implementasi teknologi unmanned terhadap retail store? Cik ada rasa perubahan atau tidak di dalam pengalaman pembelian?

Participant: Unmanned store punya idea bagi saya adalah idea yang baru dan fresh untuk negara kita dan of course saya rasa yang ianya idea yang baik. Kita kenalah melangkah seiring dengan kemodenan. Sekarang pun kita dapat tengok trend where orang ramai lebih selesa menggunakan teknologi cashless kerana lebih mudah untuk digunakan.

And of course, pengalaman pembeliaan pun berubah. Saya dah tak perlu nak korek isi bag saya untuk cari wang kertas semata-mata untuk beli air minuman sahaja. Tap dan sudah selesai. Saya pun tak perlu nak beratur panjang menunggu giliran barangan saya untuk discan cashier, saya boleh buat semua itu sendiri.

Interviewer: Ahhh begitu….okay, okay. Seterusnya, saya nak tanya pulak, adakah cik rasa lebih senang menggunakan unmanned technology daripada pergi ke kedai fizikal? Kalau ya, boleh cik berikan beberapa sebab?

Participant: Walaupun saya tekankan yang pengalaman pembelian berlainan, tapi bagi saya, saya lebih prefer kedai fizikal. Bagi saya kedai fizikal lebih mudah sebab ada orang yang akan membantu kita kalau kita tak tahu dekat mana barang atau produk yang kita nak cari. Senang cerita ada orang yang akan assist kita kalau kita berdepan masalah.

Unmanned store mungkin agak leceh untuk saya kalau saya ada apa-apa masalah. Yalah, tak ada pekerja on site yang saya boleh terus tanya.

Interviewer: Saya faham maksud cik Aiman. Seterusnya menyentuh soal harga barangan yang dijual. Menurut cik adakah ianya lebih murah jika nak dibandingkan dengan harga brangan-barangan di kedai fizikal di luar sana?

Participant: Harga eh, hmmm..bagi saya harga setaraf dengan harga convenience store dekat luar sana macam 7 eleven, MyNews, KK mart apa semua. Yang pasti, murah lagi barangan-barangan macam tu dekat Speed99 Mart.

Interviewer: Okay, bagaimana pulak dengan khidmat pelanggan yang terdapat di BingoBox?

Participant: Khidmat pelanggan dia memang unik saya tengok. Daripada arahan yang diberikan berdekatan interkom tu, lagi jelaslah konsep unmanned store. Ada pekerja yang

Interviewer: Baik, untuk soalan seterusnya. Adakah cik mempunyai concern atau doubt bila menggunakan teknologi BingoBox? Kita sedia maklum BingoBox merupakan teknologi daripada negara China, jadi adakah bagi cik teknologi dari negara China setaraf dengan negara-negara jiran mereka?

Participant: Kita dah pun masuk ke dalam fasa pemodenan global.

Interviewer: Beralih kepada aspek keselamatan, adakah cik rasa selamat ketika menggunakan BingoBox ini?

Participant: Memang saya rasa sangat selamat. Selagi kita tak install apps SOSMART tu, selagi itu kita tak akan dapat masuk dalam kedai tu. Tapi ada kekurangan sikit lah kalau kita tak ada akses internet waktu dalam kedai tu.

Interviewer: Baiklah, untuk bahagian terakhir bagi soalan saya, apakah halangan yang paling cik dapat lihat untuk pengguna-pengguna di Malaysia untuk menggunakan BingoBox ni. Dari segi penggunaan, sekuriti atau contoh-contoh lain?

Participant: Halangan yang dapat saya nampak pertama sekali adalah applikasi SoSmart itu sendiri. Apps ni kadang-kadang ada masalah unresponsive. Dahlah kita nak masuk dan gunakan BingoBox melalui apps tu. Bila kerap kali ada masalah contohnya pada scanner apps tu, kemungkinan untuk orang terkurung dala kedai tu tinggi.

Selain itu, lokasi BingoBox. Bagi saya sangat tak strategik, sepatutnya mereka letakkan BingoBox ni dekat tempat yang jadi tumpuan ramai. Kawasan Bukit

Bintang ni memang dah sangat cantik location dia, tapi tulah, mereka decide untuk letak dekat tengah-tengah kawasan kondominium. Memang terhalang dari pandangan pengunjung-pengunjung yang datang ke Bukit Bintang.

Interviewer: Okay, akhirnya kita akan bergerak ke soalan terakhir. Bagaimanakah cara untuk BingoBox menarik lebih ramai pengguna-pengguna di Malaysia untuk mula menggunakan unmanned technology?

Participant: Pada pendapat saya, mereka boleh menarik lebih ramai pengguna-pengguna di Malaysia dengan mengeluarkan iklan atau meuar-uarkan lagi teknologi ini menerusi sosial media, sebab bagi saya sosial media ada lebih banyak pengaruh terutamanya kepada golongan-golongna muda yang aya rasakan adalah sasaran pelanggan mereka yang paling utama.

Interviewer: Baiklah, dengan ini berakhir sudah temubual kita berkenaan dengan teknologi BingoBox. Terima kasih banyak-banyak Cik Aiman kerana sudi ditemubual oleh saya dan juga memberi info-info dan pandangan cik sendiri. Ini dapat membantu saya dalam menyelesaikan tugasan saya

Participant: Sama-sama, terima kasih juga buat Cik Hanies. Saya doakan cik berjaya dalam tugasan cik.