THE EFFECTIVENESS USE OF QUICK RESPOND (QR) CODE TECHNOLOGY TOWARDS BUSINESS IN MELAKA

KHAIRUL AISAMUDDIN BIN ALI

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

UNIVERSITI TEKNIKAL MALAYSIA MELAKA (UTeM)

THE EFFECTIVENESS USE OF QUICK RESPOND (QR) CODE TECHNOLOGY TOWARDS BUSINESS IN MELAKA

KHAIRUL AISAMUDDIN BIN ALI

Report submitted in fulfilment of the requirements for the Degree Bachelor of Technology Management (High Technology Marketing)

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

Faculty of Technology Management and Technopreneurship

Universiti Teknikal Malaysia Melaka (UTeM)

2023

DECLARATION

I hereby declared that this thesis entitled

“THE EFFECTIVENESS USE OF QUICK RESPOND (QR) CODE TECHNOLOGY TOWARDS BUSINESS IN MELAKA’

UTeM
اونيۏرسيتي تيكنيكل مليسيا ملاك
UNIVERSITI TEKNIKAL MALAYSIA MELAKA

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.

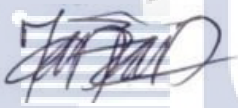
Signature :

Name : KHAIRUL AISAMUDDIN BIN ALI

Date : 3 FEBRUARY 2023

APPROVAL

I hereby acknowledge that this project paper has been approved as part fulfilment for the Degree Bachelor of Technology Management (High Technology Marketing) with Honours (BTMM)

Signature : 

Supervisor : DR. NURUL ZARIRAH BINTI NIZAM

Date : 3 FEBRUARY 2023

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

Signature :

Panel : MRS. HARTINI BINTI AZMAN

Date : 3 FEBRUARY 2023

DEDICATION

This research project is dedicated to my respectful supervisor, Dr. Nurul Zarirah Binti Nizam, who provides the guidance, motivation, encouragement, and useful experience to me in order to complete this research project.

Next, I would like to dedicate this research to all respondents who willing to contribute their valuable efforts and time to answer the questions stated in the research questionnaires. I truly appreciate their cooperation, which has made this research project a success.

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

ACKNOWLEDGEMENT

I want to show my appreciation to my supervisors, panel, friends, and family members who have provide me endless support to complete my final year project. Firstly, I would like to show my thankfulness to my academic supervisor, Dr. Nurul Zarirah Binti Nizam, who supported me by constantly giving constructive ideas and providing directions towards the completion of this project. Secondly, I am deeply grateful to my panel Mrs. Hartini Binti Azman, who contribute her time and her opinion to modify the report. Next, my deep gratitude to my friends who have been helpful and provide me continual encouragement when encountered obstacles in doing this project. Lastly, I would also express my appreciation to my parents which is my biggest support system, for all the love and care during completing this project. All of the enthusiastic encouragement and support have been assisted me to keep my progress in schedules and sustain along the way to complete this final year project.

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

ABSTRACT

In the era of globalization, advancements in information and communication technology have significantly altered the purchasing preferences of customers, who now prefer to buy simultaneously on both online and physical platforms. The QR Code is one of the new technology's shops can utilize to adapt to these changes (Quick Response code). Quick response (QR) codes are also incredibly effective as business tools for businesses. As a result, the aim of this study was to evaluate the effectiveness use of QR code technology towards business in Melaka. Besides that, this study extract Technology Acceptance Model (TAM) into research framework for identify the factors that influence effective usage of QR code technology towards business in Melaka. This was descriptive research, and the data collected using the questionnaire from 150 respondents, with the majority of the respondents are own a business. Besides, to analyze the collected data, the researcher will be using the Statistical Package for Social Science (SPSS). To describe the variables numerically and find the relationship between the independent variables and the dependent variables, researcher uses the descriptive analysis and Pearson correlation analysis as the data analysis techniques. The results showed that the effective usage of QR code in business has a significant impact of the factors influencing the QR code technology which is perceived usefulness, perceived ease of use and perceived security while there is no significant relationship between the feasibility with the effective usage of QR code technology towards business. Researcher finds that perceived usefulness is the main factor that influence the QR code effectiveness towards business. The implication of this study is researchers may learn the effects and factors of the increased the effective usage of quick respond (QR) code towards business in Melaka.

Keywords: *QR code, Business, Perceived Usefulness, Feasibility, Perceived Ease of Use, Perceived Security.*

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

ABSTRAK

Dalam era globalisasi, kemajuan dalam teknologi maklumat dan komunikasi telah mengubah keutamaan pembelian pelanggan dengan ketara, yang kini lebih gemar membeli secara serentak pada kedua-dua platform dalam talian dan fizikal. Kod QR ialah salah satu daripada kedai teknologi baharu yang boleh digunakan untuk menyesuaikan diri dengan perubahan ini (kod Respons Pantas). Kod respons pantas (QR) juga sangat berkesan sebagai alat perniagaan untuk perniagaan. Hasilnya, tujuan kajian ini adalah untuk menilai keberkesanan penggunaan teknologi kod QR terhadap perniagaan di Melaka. Selain itu, kajian ini mengekstrak Model Penerimaan Teknologi (TAM) ke dalam rangka kerja kajian untuk mengenal pasti faktor-faktor yang mempengaruhi penggunaan teknologi kod QR yang berkesan terhadap perniagaan di Melaka. Ini adalah kajian deskriptif, dan data yang dikumpul menggunakan soal selidik daripada 150 responden, dengan majoriti responden mempunyai perniagaan. Selain itu, untuk menganalisis data yang dikumpul, pengkaji akan menggunakan perisian Statistical Package for Social Science (SPSS). Untuk menghuraikan pembolehubah secara numerik dan mencari hubungan antara pembolehubah bebas dan pembolehubah bersandar, pengkaji menggunakan analisis deskriptif dan analisis korelasi Pearson sebagai teknik analisis data. Hasil kajian menunjukkan bahawa penggunaan kod QR yang berkesan dalam perniagaan mempunyai kesan yang signifikan terhadap faktor-faktor yang mempengaruhi teknologi kod QR iaitu persepsi kebergunaan, persepsi kemudahan penggunaan dan persepsi keselamatan manakala tidak terdapat hubungan yang signifikan antara kebolehlaksanaan dengan penggunaan yang berkesan. Teknologi kod QR ke arah perniagaan. Pengkaji mendapati bahawa persepsi kebergunaan adalah faktor utama yang mempengaruhi keberkesanan kod QR terhadap perniagaan. Implikasi kajian ini adalah penyelidik mungkin mengetahui kesan dan faktor peningkatan keberkesanan penggunaan kod tindak balas pantas (QR) terhadap perniagaan di Melaka.

Kata Kunci: *Kod QR, Perniagaan, Persepsi Kebergunaan, Persepsi Kemudahan Penggunaan, Persepsi Keselamatan, Kebolehlaksanaan*

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

TABLE OF CONTENTS

CONTENT	PAGE
DECLARATION	**i**
APPROVAL	**ii**
DEDICATION	**iii**
ACKNOWLEDGEMENT	**iv**
ABSTRACT	**v**
ABSTRAK	**vi**
CHAPTER 1: INTRODUCTION	
1.1 Introduction	1
1.2 Background of Study	2
1.3 Problem Statement	3
1.4 Research Questions	5
1.5 Research Objectives	5
1.6 Scope and Limitation of Study	6
1.7 Significance of Study	6
1.8 Summary	6
CHAPTER 2: LITERATURE REVIEW	
2.1 Introduction	7

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

2.2 Definition of Technology 8

2.3 QR Code Technology 8

2.3.1 Structure and Characteristics of QR Code Technology 9

2.4 The Effective Usage of QR Code Technology Itself 10

2.5 The QR Code Effectiveness in Business 11

2.6 The Current State of Knowledge Concerning the QR Code Effective Usage in Business 11

2.7 QR Code Beneficial Elements in Technological Advancement 12

2.8 QR Code as a Marketing Tool 13

2.9 Review of Relevant Theoretical Model 14

2.9.1 technology Acceptance Model (TAM) 14

2.10 The Factors That Influence QR Code Effective Usage Towards Business 15

2.10.1 Perceived Usefulness 15

2.10.2 Feasibility 16

2.10.3 Perceives Ease of Use 16

2.10.4 Perceived Security 16

2.11 Conceptual Framework 17

2.11.1 Hypothesis 18

2.12 Summary 19

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

CHAPTER 3: METHODOLOGY

3.1 Introduction 20

3.2 Research Design 21

3.3 Methodology Choice 22

3.4 Data Source 22

3.4.1 Primary Data and Secondary Data 22

3.5 Sampling Design 23

3.5.1 Sampling Technique 23

3.5.2 Sampling Size 23

3.6 Research Strategy 25

3.6.1 Questionnaire Design 25

3.6.2 Pilot Test 26

3.7 Data Analysis Method 26

3.7.1 Descriptive Analysis 27

3.7.2 Pearson Correlation Analysis 27

3.7.3 Linear Regression Analysis 28

3.8 Validity and Reliability 28

3.8.1 Validity 29

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

3.8.2 Reliability 29

3.9 Summary 30

CHAPTER 4: DATA ANALYSIS

4.1 Introduction 31

4.2 Pilot Test 32

4.3 Descriptive Analysis 33

4.3.1 Background of The Respondent 33

4.3.2 Gender 35

4.3.3 Age 36

4.3.4 Race 37

4.3.5 Do You know About Quick Respond (QR) Code Technology? 38

4.3.6 Did You Use QR Code Technology in Your Business? 39

4.4 Descriptive Analysis 40

4.4.1 Dependent Variable: QR Code Effective Usage Towards Business 41

4.4.2 Independent Variable 1: Perceived Usefulness 42

4.4.3 Independent Variable 2: Feasibility 43

4.4.4 Independent Variable 3: Perceived Ease of Use 44

4.4.5 Independent Variable 5: Perceived Security 45

4.5 Pearson's Correlation Analysis 46

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

4.5.1 Relationship Between Independent Variable and Dependent Variable 47

4.6 Multilinear Regression 48

4.7 Hypothesis Testing 52

4.8 Summary 54

CHAPTER 5: CONCLUSION AND RECOMMENDATION

5.1 Introduction 55

5.2 Summary of Descriptive Analysis 56

5.3 Discussion of Research Objective and Hypothesis Testing 58

5.3.1 Discussion of Research Objective 1 58

5.3.2 Discussion of Research Objective 2 59

5.3.3 Discussion of Research Objective 3 62

5.4 Implication of Study 63

5.5 Recommendation for Future Research 64

5.6 Summary 65

REFERENCES 66

APPENDICES 69

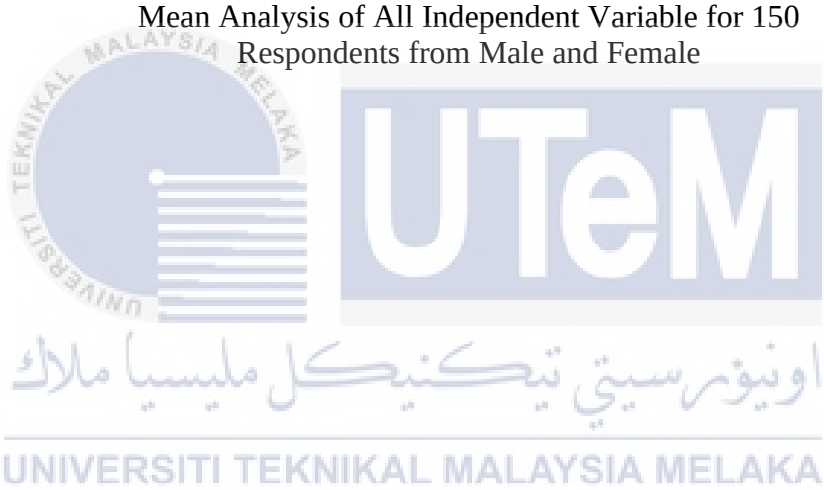
UNIVERSITI TEKNIKAL MALAYSIA MELAKA

LIST OF TABLES

TABLES	TITLES	PAGE
3.1	The Rules of Thumbs Interpretation Correlation	27
3.2	Cronbach's Alpha Coefficient	29
4.1	Pilot Test for 15 Respondents	32
4.2	Summary of Total Demographic Information	33
4.3	Gender of Respondents	35
4.4	Age of Respondents	36
4.5	Race of Respondents	37
4.6	Do you know about Quick Respond (QR) code technology?	38
4.7	Did you use QR code technology in your business?	39
4.8	Value of Mean Score	40
4.9	Descriptive Analysis of QR Code Effective Usage Towards Business	41
4.10	Descriptive Analysis of Perceived Usefulness	42
4.11	Descriptive Analysis of Feasibility	43
4.12	Descriptive Analysis of Perceived Ease of Use	44
4.13	Descriptive Analysis of Perceived Security	45
4.14	Strength of the Correlation Coefficient	46

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

4.15	Correlation between Independent Variable and Dependent Variable	47
4.16	Model Summary	49
4.17	ANOVA	49
4.18	Coefficients	50
4.19	Hypothesis Result	54
5.1	Summary of Total Demographic Information	56
5.2	Mean Analysis of All Independent Variable for 150 Respondents from Male and Female	58


UNIVERSITI TEKNIKAL MALAYSIA MELAKA

LIST OF FIGURES

FIGURES	TITLES	PAGES
2.1	Example of QR Code	9
2.2	Structure of QR Code	9
2.3	QR Code Dynamic	13
2.4	Technology Acceptance Model (TAM)	14
2.5	Conceptual Framework	18
3.1	Krejcie & Morgan	24
3.2	Sample Size for Different Sizes of Population	25
4.1	Gender of Respondent	35
4.2	Age of Respondent	36
4.3	Race of Respondent	37
4.4	Do you know about Quick Response (QR) code technology?	38
4.5	Did you use QR code technology in your business?	39

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

LIST OF APPENDICES

NO	TITLE	PAGES
I	Gantt Chart	69
II	List of Company	71
III	Consent Letter	76
IV	Questionnaire	78

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

CHAPTER 1

INTRODUCTION

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

1.1 Introduction

This chapter explains about background of study, research problem, research question, research objectives, scope, limitation, and significance of the study. Researchers choose to investigate the effectiveness use of quick respond (QR) code technology towards business.

1.2 Background of Study

QR codes, which are a type of matrix barcode, can be read by a mobile device through the use of a reader application (app). QR codes are also known as matrix barcodes. This application makes use of the camera on the user's smartphone to scan, read, and then direct the user to a place chosen by the app's developer in order to access certain information. QR codes are generated by software that generates a one-of-a-kind barcode. This barcode has the capability of being programmed to contain information about an item or product, direct the user to a particular website, cause media to play immediately when the barcode is scanned, or send a customized text message to the user's phone.

According to Rohit Trivedi (2019), Masahiro Hara, an employee of the Japanese business Denso Wave, is credited with developing the QR code technology in the year 1994. The black and white pieces that are used on a go board served as inspiration for the original design. It was built to facilitate high-speed component scanning so that it could fulfil its primary goal of tracking cars as they were being manufactured. The storing of data in QR codes is accomplished by the utilisation of both horizontal and vertical space. Because of this, it is possible to store a significant quantity of information as text, numbers, or binary codes (Albastroiu and Felea, 2015).

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

The information may be read with the help of a built-in camera and code-reading software on a smart phone. Because it enables mobile devices to retrieve information in a fast way, this code is known as the Quick Response code (such as website addresses, e-mail addresses, phone number, geographical, coordinates and so on). QR codes enable advertisers to send consumers to mobile visiting sites that feature much more information and interaction than can be provided on the printed page. Users may be sent to these mobile landing pages from adverts, pamphlets, posters, clothes, and even billboards. Any marketing or outreach campaign will benefit from the addition of a new dimension of communication related to the combination of print and the web via mobile devices.

Other than that, QR code also can be used as a payment. A QR code payment is a sort of contactless payment that involves the use of a smartphone app to scan a QR code in order to complete the transaction. An electronic money transfer at the

point of sale may also be completed using this method instead of utilizing a payment terminal. Because of this, existing payment infrastructure, such credit cards, payment networks, payment terminals, and merchant accounts, is unnecessary for the processing of electronic payments.

In conclusion, QR codes are a sort of matrix barcode that can be scanned by installing a reader program (app) onto a mobile device. This makes use of the camera on the user's smartphone to scan, read, and then direct the user to a place chosen by the app's developer. Mobile technology has made it possible to store a significant quantity of information as text, numbers, or binary codes. QR codes enable advertisers to send consumers to mobile visiting sites that feature much more information and interaction than can be provided on the printed page. They can also be used as a payment method.

1.3 Problem Statement

Due to the fast development of information technology and the Internet, a large number of buyers utilize QR code technology to access item information prior to buying. Statistics carried out a study in September of 2020. It referred to the growth of 94% of people reading QR codes between 2018 and 2020. According to Noraini Sariyon and Amran Harun (2020), QR code technology streamlines commercial channels by providing ease and adaptability across sectors. Obtaining information and completing payment transactions, for example, are facilitated by internet platforms such as QR code technology.

First problem statement is the trust issue among consumer about the effectiveness use of QR code technology. According to Mun et al. (2017), the survey conducted among mobile device users aged 18 to 39, representing 23.8% of total responses, the main reason respondents do not utilise QR code services is because they are concerned that their personal information would not be kept confidential again while using a QR code. Furthermore, 20.6% of QR code service responses claimed that QR code services would result in transaction fraud, and 16.7% of responses indicated that QR code services would make it easy for hackers to obtain user 4 information from phones using QR code technology. According to The Star

news, cybersecurity incidents are now increasing by 82.5%. Because of worries about the security of QR codes, many consumers are still afraid to use them in the purchase decision.

Besides that, second problem statements is considering QR codes' potential as a practical tool for businesses and consumers alike, the vast majority of research thus far has focused only on their marketing potential. For example, from a prior study Asare, (2015) only focused on the effectiveness of QR codes as a marketing tool. This will cause consumers to be uninformed of the high correlation between QR code technology and the purchase process. It's for this reason that not all consumers have yet caught on to the convenience and efficiency of QR codes in retail and business operations. Previous research by Qian J., Xing B., Zhang B., and Yang H. (2021), for instance, found that when customers used QR codes during the purchasing process, they spent significantly less time researching products. The number of people who are both aware of and interested in using QR codes is relatively low. Since it is a simple tool, many individuals opt to use traditional means to get information.

There are some disadvantages of using QR codes technology. The disadvantages of QR code are it needs a phone that has a camera, it is too expensive for the average user to buy because compared to more basic mobile phones, the smartphones required to read QR codes are often more expensive and pricier. Besides that, in order to minimize skepticism among customers, advertisers need to educate them about technological innovations. Last but not least, according to Iam Waqas (2021), there have been several cases of QR codes being taken advantage of and misused in various ways. For example, the security risk of QR codes such as financial theft. QR codes are a convenient way to make purchases and pay bills. During the covid-19 epidemic, they were used to enhance "no-contact" communication and information transmission. Restaurants and gas stations use QR codes for payments. Any threat actor may replace a valid QR code with a fake one in such public settings to steal money.

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

1.4 Research Questions

After the researcher identified the title of the study and refined it, the researcher has issued 3 research questions as follows:

RQ1: What is the factors that influence the QR code effectiveness towards business?

RQ2: What is the relationship between the factor that influence the QR code effectiveness towards business?

RQ2: Which is the greatest factor that influence the QR code effectiveness towards business?

1.5 Research Objectives

The aim of this study is to find out the effectiveness use of quick respond (QR) code technology towards business. To achieve the goal, the researcher mainly focuses on the following objectives:

RO1: To determine the factors that influence the QR code effectiveness towards business.

RO2: To analyze the relationship between the factor that influence the QR code effectiveness towards business.

RO3: To analyze which is the greatest factor that influence the QR code effectiveness towards business.

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

1.6 Scope and Limitation of Study

The research is focuses on the effectiveness use of QR code technology towards business and services. The respondents used in this research is focus on business and customers that using quick respond (QR) code.

Besides that, in this research, researcher has done more in-depth research about the usage of QR code. Time restraints, lack of expertise and information, and unwillingness on the part of respondents are all challenges faced by researchers. In the meantime, the researcher has to have sufficient knowledge and expertise when conducting this research, since he or she has no experience in conducting research. The researcher has limited time to do research because of how fast the study must be carried out. In a particular period of time, the researcher has difficulty gathering as much information and specificity as feasible on the topic.

1.7 Significance of Study

This research is to increase the understanding about the effectiveness use of quick respond (QR) code technology towards business and. A large number of consumer think that QR codes do not help or facilitate in purchase goods, and some do not know how to use these QR codes to get information about the goods to be purchased. Besides that, this research can contribute to the citizens about the knowledge of QR code. Due to the fact that many people are unaware of the benefits of using QR codes when buying product, giving information such as advertisement and information, this research is to raise awareness about the effective of using QR codes.

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

1.8 Summary

In this chapter of the research subject has clarified the background of study, problem statements. In this topic, researcher discuss the research background which brings out the problem of research. Researcher also issued three research questions that matched the research objectives The important and field of the researchare also covered in this topic additionally. For the next chapter, the review of the literature will be discussed based on the research topic's introduction.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter two is to discuss about the previous findings such as journals or articles from online databases to support research with relevant variables and theoretical framework for factors influencing the QR code effectiveness towards business in Malaysia? The relationship between the dependent variable and the independent variable will be considered. The proposed conceptual structure is to be explored and analyzed and followed by the development of hypothesis between the variables that is to be tested in the following chapter.

UNIVERSITI TEKNIKAL MALAYSIA MELAKA