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Factors Affecting Attitude towards and Intention to use QR Code Payment

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Abstract - The purpose of this research was to study the factors affecting the attitude and intention in selecting application QR code payment through smart phone. The conceptual framework of this research developed from technology acceptance model (TAM). The sample in this research was divided into 3 groups, the baby boomer, generation X, and generation Y. The results showed that the factors affecting the perspective and intention to use smart phone QR code payment were 8 factors; attitude toward QR code, perceived usefulness, perceived ease of use, perceived risk, descriptive norm, injunctive norm, subject norm, and behavior intention. The results of this study useful in the development of consumer choice model of the QR code payment and the foundation that can be useful for the further

Keywords - Behavior Intention, QR Code Payment, Technology Acceptance Model

I. INTRODUCTION

The life habits of the population in the world have changed greatly. Digital technology and social networking in the role of consumer behavior. Whether it is the Shopping and services many more. Cashless Society Become a trend that many countries around the world are trying to achieve. To increase the efficiency of financial transactions in the country. To facilitate fast, accurate. The use of the service or QR code for payment. QR Code is Quick Response Code Is a kind of code that was developed from the barcode, but easier to use and store more data.

What is QR Code?

QR Quick Response Code Is a kind of code that was developed from the barcode, but easier to use and store more data. The current has been implemented in many forms, such as using a channel to receive payment at the store. Used to store your company's website to allow interested parties access information. We can read the QR Code through the program in a new version of the mobile phone. QR Code has been developed to be used to pay for goods and services at the general store and online stores and popular in many countries, such as China and India. QR Code contains the necessary information for payment. And in conjunction with the mobile application.

Understanding the factors that affect views and intentions in selecting applications via your Smartphone QR Code to make them aware of QR Code Payment habits. Which is divided into 3 parts: 1. have a general

information 2. use of information, services, financial transactions, Payment Code QR 3. QR Code technology, accepted information Payment concept theory accepted technologies (Technology Acceptance Model: TAM) and the use of qualitative research is a research methodology for researchers to analyze factors that affect views and intentions in the selection using QR Code application through smartphones.

II. Literature Review

One of the best tools to measure the attitude to technology adoption theory is Technology Acceptance Model: TAM) of Davis. As shown in Figure 1 A theory of an information system relating to user acceptance and use of technology by describing whether the external variables to create awareness of the benefits service and ease of use of the service (Perceived Ease of Use). Which affect the various attitudes towards use and intent to use the technology acceptance behavior. Finally, it will be used later Perceived Usefulness.

The research of Factors Affecting Adoption of e-Government Service: A Case Study of e-Revenue. The application of Technology Acceptance.(Mongkolsubkul) This research found that user gets to know ease of use usefulness and reliable and lead to accepting the service and online tax revenue.

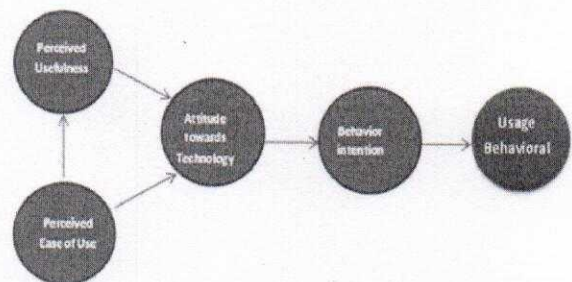


figure 1 Technology Acceptance Model:(TAM) Davis et al.(1992)

Figure 1 explains that Perceived Ease of use and Perceived usefulness are a cause of attitude toward technology and will be a behavior intention and finally it is a usage behavioral

III. METHODOLOGY

This research uses in-depth interview method. Populations and samples in this research were divided into 3 groups, (Zemke et al., 2000, pp. 1-150) that are Group 1: the baby boomer, (50 years old or higher)
Group 2: generation X (36-50 years old)

Group 3: generation Y (below 35 years old)

This Research tool is a structured in-depth interview covering 8 issues include.

Research tools

Is a structured in-depth interview based on guidelines that are used in education to bring the data supports findings from quantitative research to data from in-depth interviews, as the information that is appropriate to access

the findings that meet the objectives by having structure in-depth interviews.

Part 1 General information of interviewees comprise the Username, address, sex, age, marital status, occupation, phone number, education, Revenue per month

Part 2 of a financial transaction by QR Code questions about the book value tied, to the frequency of the service QR Code QR Code and questions about transactions using QR Code.

Part 3 QR Code technology to accept questions about the attitude towards financial transactions through a QR Code, perceived usefulness, Perceived ease of use, perceived risk, descriptive norm, injunctive norm, subject norm, and behavior intention.

The reason to use 3 groups because of previous research that found that Age affects the acceptance of the technology.

IV. RESULTS

TABLE I
Data Analysis Part 1 and Part 2

interviewees Baby Boomer	sex	age	status	occupation	education	Revenue per month	book value tied	Frequency/t ime per week	transactions using QR Code
b1	female	56	widow	employee	Bachelor	25,001-35000	5,000	2	Pay utility bills.
b2	male	53	Marry	employee	Master	≥55,000	10,000	4	Shopping / meals
B3	female	54	Marry	employee	Bachelor	≥55,000	2,000	1	Shopping
B4	male	54	Marry	employee	Bachelor	≥55,000	1,000	8	Pay credit card and Shopping.
B5	male	52	Marry	employee	Bachelor	≥55,000	10,000	4	Shopping
B6	male	54	Marry	employee	Bachelor	≥55,000	2,000	everyday	Shopping
B7	male	52	Marry	employee	Bachelor	≥55,000	20,000	4	Shop online.
B8	male	50	Marry	employee	Bachelor	150,000	100,000	everyday	Pay for lunch
B9	female	65	Marry	employee	Lower Bachelor	≤15,000	3,000	1	Shopping
B10	male	54	Marry	employee	Master	≥55,000	5000	4	Shopping / meals
B11	male	53	Marry	employee	Bachelor	≥55,000	5000	everyday	Shopping / meals
B12	male	54	Marry	employee	Bachelor	≥55,000	1,500	everyday	Shopping / meals
B13	male	53	Marry	employee	Bachelor	≥55,000	1,000	everyday	Shopping / meals
B14	male	50	Marry	Government officials	Master	45,000-55,000	10,000	2	Shopping
B15	male	50	Marry	Government officials	Master	45,000-55,000	5,000	3	Pay utility bills.
interviewees generation x	sex	age	status	occupation	education	Revenue per month	book value tied	frequency	transactions using QR Code
X1	female	43	Marry	Instructor	Master	35,000-40,000	40,000	3	Shop online.
X2	male	46	Marry	employee	Bachelor	45000-55,000	45,000	3	Pay utility bills.
X3	male	43	Marry	Instructor	Master	25,001-35,000	30,000	10	Pay credit card and Shopping.
X4	female	42	Marry	employee	Lower Bachelor	15,000-25,000	20,000	7	pay credit card and Shopping
X5	female	43	Marry	Instructor	Master	25,001-35,000	25,000	1	Shopping
X6	female	37	single	Instructor	Master	15,000-25,000	25,000	2	Pay utility bills / pay credit card and Shopping.
X7	female	43	Marry	Instructor	Master	25,001-35,000	30,000	4	Pay utility bills / pay credit card and Shopping
X8	male	36	single	employee	Lower Bachelor	15,000-25,000	50,000	4	Money transfer, Shopping.
X9	female	42	Marry	employee	Bachelor	≥55,000	5,000	5	Pay utility bills / pay credit card and Shopping

X10	male	43	Marry	employee	Bachelor	45001-55000	35,000	8	Shopping.
X11	male	47	Marry	employee	Master	25001-35000	35,000	8	Shopping.
X12	male	43	Marry	Instructor	Master	25001-35000	30,000	5	pay credit card
X13	female	46	Marry	employee	Master	25001-35000	30,000	4	Shopping.
X14	female	43	Marry	employee	Master	25001-35000	30,000	4	Shopping.
X15	female	39	Marry	employee	Master	25001-35000	30,000	8	pay credit card and Shopping
interviewees generation x	sex	age	status	occupation	education	Revenue per month	book value tied	frequency	transactions using QR Code
Y1	female	35	single	Government officials	Lower Bachelor	≤15,000	10,000	3-4	Shopping.
Y2	male	24	single	employee	Lower Bachelor	15,000-25,000	50,000	4	Shop online.
Y3	female	23	single	employee	Lower Bachelor	≤15,000	15,000	20	Shopping.
Y4	male	25	single	employee	Lower Bachelor	15,000-25,000	5,000	1	Shopping.
Y5	female	27	Marry	employee	Lower Bachelor	15,000-25,000	1,000	1	Shopping.
Y6	male	25	single	employee	Lower Bachelor	≤15,000	10,000	3	Shopping.
Y7	male	24	single	employee	Lower Bachelor	25,000-35,000	1,500	1	Pay utility bills.
Y8	female	22	single	employee	Lower Bachelor	≤15,000	3,000	1	Shopping.
Y9	male	25	single	employee	Lower Bachelor	15,000-25,000	10,000	4	Money transfer, Shopping./ Pay utility bills / pay credit card
Y10	female	24	single	employee	Bachelor	15,000-25,000	5,000	5	Pay utility bills / Shopping / Money transfer
Y11	male	25	single	employee	Lower Bachelor	25,000-35,000	10,000	20	Money transfer
Y12	female	22	single	employee	Lower Bachelor	15,000-25,000	3,000	12	Money transfer, Shopping./ Pay utility bills
Y13	female	26	single	Government officials	Lower Bachelor	≤15,000	10,000	3	Pay utility bills / pay credit card
Y14	female	20	single	employee	Lower Bachelor	≤15,000	10,000	3	Pay utility bills / pay credit card
Y15	female	20	single	employee	Lower Bachelor	≤15,000	10,000	5	Shopping./ Pay utility bills

TABLE II
Data analysis Part 3 QR Code technology acceptance.

Research issues	Baby boomer	Generation X	Generation Y
1. Perceived Ease of Use	<ul style="list-style-type: none"> - Convenient and easy to use. - Payment is not required to press accounts. - There are easy to use. Just open an application Enter the codes scanned, it can pay. 	<ul style="list-style-type: none"> - Convenient and easy to use. - Easy to use, just press scan and Payments. 	<ul style="list-style-type: none"> - There are easy and quick to use. - There are easy to use because of the transaction via mobile.
2. Perceived Usefulness	<ul style="list-style-type: none"> - No need to carry cash and coins. - No problem, the reduction of money. - The process to withdraw cash from an ATM used to pay. - Free transfer of payments for utilities Bill. - Reduce the risk of theft. - Save time, went to the bank for financial transactions. - The use of QR code is a 	<ul style="list-style-type: none"> - Can be used to pay for goods instead of cash. - Utility payment can be made immediately. - Anywhere, anytime. - Safe from theft - No problem from don't have change and a coin - The process to withdraw cash from an ATM used to pay. - Reliability because of the 	<ul style="list-style-type: none"> - No need to carry cash. - Save time, go to the Bank to make financial transactions. - Reducing the risk of theft. - Transfer money, check balances and pay bills for free. - Withdrawal using QR Code. - Free of charge from the payment service through counter service.

	<ul style="list-style-type: none"> modernization technology The Bank of Thailand as a system administrator 	<ul style="list-style-type: none"> endorsement by the financial institution. Reduce the cost of printing the banknotes and coins. There are no fees to use. The payment system is modern. 	
Research issues	Baby boomer	Generation X	Generation Y
3. Perceived Risk	<ul style="list-style-type: none"> There is a risk of the hacked information. The case of Internet crashes. Filling the wrong amount. Risk of stolen phones. 	<ul style="list-style-type: none"> There is a risk of the hacked information Case of Internet crashes Filling the wrong amount.- Risk of stolen phones. 	<ul style="list-style-type: none"> There is a risk of the hacked information Case of Internet crashes Filling the wrong amount. Filling the wrong amount.
4. Descriptive Norm	<ul style="list-style-type: none"> Closely with the QR Code as well as husbands, wives, Children know how to use QR Code that is easy to use. 	<ul style="list-style-type: none"> Closely with the QR Code that is easy to use. 	<ul style="list-style-type: none"> Closely with the QR Code that is easy to use.
5. Injunctive Norm	<ul style="list-style-type: none"> People who are in contact with are using QR Code have the same opinion that is useful, convenient, easy to use. 	<ul style="list-style-type: none"> People who are in contact with are using QR Code have the same opinion that is useful, convenient, easy to use. 	<ul style="list-style-type: none"> People who are in contact with are using the QR Code to use, but I still do not have the same opinion that is useful, convenient, easy to use.
6. Subject Norm	<ul style="list-style-type: none"> The reference is to use QR Code that is used but not much. 	<ul style="list-style-type: none"> The reference is to use QR Code that is used but not much. 	<ul style="list-style-type: none"> The reference is to use QR Code that is used but not much.
7. Behavior Intention	<ul style="list-style-type: none"> Is intended to be used and will recommend others to use a number of 13 people. May not be used all the time. There is a number of 2 people. 	<ul style="list-style-type: none"> Is intended to be used and will recommend others to use a number of 8 people. May not be used all the time. There are a number of 7 people 	<ul style="list-style-type: none"> Is intended to be used and will recommend others to use a number of 14 people. May not be used all the time. There are a number of 1 people
8. Usage Behavior	<ul style="list-style-type: none"> QR Code will be used to pay for goods and services all the time. When the symbol is in the QR Code because payment to reserve cash for stores that don't have a QR Code. The amount paid per item is not high. There are rewards to redeem your prize. There is a credit refund. 	<ul style="list-style-type: none"> QR Code will be used to pay for goods and services all the time. When the symbol is in QR Code because payment to reserve cash for stores that don't have a QR Code The amount paid per item is not high. There are rewards to redeem your prize. There is a credit refund. Only use the shop found credible. 	<ul style="list-style-type: none"> QR Code will be used to pay for goods and services all the time. When the symbol is in QR Code because payment to reserve cash for stores that don't have a QR Code Will choose to use a QR Code in cases where there is no change.

V. DISCUSSION

1. *Perceived Ease of Use*: Users of the QR Code application are aware of the ease of use. Just have a phone and the QR Code application can be used Easy to use.

2. *Perceived Usefulness*: Users applications QR Code perception to use is not required to carry cash. As one can pay paid for goods or services are not to have any change, no need to have a minimum amount to pay and there is no fee.

3. *Perceived Risk*: To pay with a QR Code that user is at risk of being hacked information. The problem of Internet, access filling wrong numbers, the stolen phone Or lost phone.

4. *Descriptive Norm*: Norms of the closer ones, or family and friends is of the opinion that the use of QR Code, easy to use. There are fast and simple to use as well.

5. *Injunctive Norm*: The norms of a group of people who are in contact with, with guidance on how to respond, as well as the norms of the closer ones, there is the use of QR Code, useful, easy to use Payment.

6. *Subject Norm*: The norms of reference group information that the use of QR Code is useful, easy to use, but also not much.

7. *Intention Behavior*: which are intended to be used by the QR Code with ease and useful, Accept the risk. As modern technology.

8. *Usage Behavior*: found that the behavior in the use of QR Code is used with items that are inexpensive. Such as food, clothing, coffee financial transactions. To withdraw money. They noted that the majority will answer that. If the mark QR Code Payment will use QR Code Payment in the first. And a minority will be in cash, if the amount paid is not sufficient, so before using the QR Code. The number of pay with QR Code will be not so much. If the

	<ul style="list-style-type: none"> modernization technology The Bank of Thailand as a system administrator 	<ul style="list-style-type: none"> endorsement by the financial institution. Reduce the cost of printing the banknotes and coins. There are no fees to use. The payment system is modern. 	
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value of payment is large. It is used as a credit card. By reason of Paying by credit card is not required to pay cash. There are advantages to having points Installments can be paid.

VI. CONCLUSION

The researcher found the information obtained from additional suggestions. It can be divided into the following.

1. want to have public relations regarding use of QR Code more such Payment in the social media has more than, for example, used to sell Facebook's had sales in Internet.

2. QR Code in connection with the payment E-ticket to all forms of public transport such as BTS (Transit System Skytrain), MRT(Metropolitan Rapid Transit) and Airport Rail Link.

3.Increase the privilege for user such as point accumulated, installment etc.

4. More public relation to create awareness and online security.

5. Government should use to these information to calculate a tax payment.

6. The government is agency that supervises, builds confidence. QR Code system as well as public relations. Support QR Code for interested parties to know the benefits. And how to use it correctly.

7.Would like to Code QR Payment System to rapidly. In the settlement, because without the change.

Suggestions and adoption

Study explores factors that affect views and intentions in the selection using QR Code application through smartphones was divided into 3 groups: baby boomer, Generation X Generation Y

The results of this study useful in the development of consumer choice model of the QR code payment and the foundation that can be useful for the further research.

Merchants and entrepreneurs

If the interview is on the part of the shop QR Code that has to be introduced for customers to pay for goods and services seems to make more data that shows the factors that affect views and intentions in selecting applications QR Code even more clearly.

Government.

The Government section has suggestions from this research to analyze and control and supervision on the part of the payment with the following QR Code Payment.

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REFERENCES

- [1] AJzen, I , "The theory of planed Behavior, Organizational behavior and Human Decision Processes" , Vol. 50, no.2, pp.179-211, 1991
- [2] AJzen, I. Perceived Behavioral Control, Self – Efficacy, Locus of Control, and the Theory of Planned Behavior, Journal of Applied Social Psychology, Vol.32 no. pp. 665-683, 2002.
- [3] Creswell, J. W., *Research design: Qualitative, quantitative and mixed methods approaches* 2003, (2nd ed.).
- [4] Creswell, J. W. & Clark V.P, *Designing and conducting mixed methods research*, Thousand Oaks, C.A. : Sage Publications,2007
- [5] Davis, F.D, "A Technology Acceptance Model for Empirically Testing New End-user Information System" Theory and Results Unpublished Ph.D. dissertation, MIT Sloan School of Management, Cambridge , 1985, MA.
- [6] Davis, FD, "Perceived Usefulness, perceived ease of use, and user acceptance of Information Technology", *MIS Quarterly*, Vol.13 no. 3, pp.319-339,1989.
- [7] Davis, FD.,Bagozzi, RP.,& Warshaw, P.R. User Acceptance of computer Technology: A Comparison of two Theoretical Models, *Management Science* Vol.35, no.8, pp.982-1002, 1989
- [8] Miles, M. and A. Huberman, *Qualitative Data Analysis*. (2nded). California, SAGE Publications, 1994.
- [9] Mongkolsubkul, W., Distanont, AKongmalai, O. and Noppakunthammachart, J, "Facor Affection Adoption of e-Government Service: A Case Stude of e-Revenue", *Kumtt Research and Development Journal* . Vol.39, no.1, pp. 1-8.(In Thai), 2016.
- [10] Zemke, R., Raines, C., & Filipczak, B. (2000). *Generations at work*. New York: AMACOM.