Payment Receiving Methodology –Benefits And Chaleenges Faced By Retailers Using Qr Code With Reference To Coimbatore

[1]D Sivasakthi, [2]S Swathi ,

[1]Associate professor , [2]Student ,Bcom Professional Accounting
[1]Dr NGP Arts and Science Collage, Coimbatore, India

Abstract :

This paper explores the adoption of QR code payment systems in retail environments, analyzing both the benefits and challenges from the retailer's perspective. QR codes offer a cost-effective, user-friendly method for processing transactions, enhancing customer experience through speed and convenience. Key benefits include reduced transaction costs, increased security through encrypted data transmission, and the ability to streamline checkout processes. Additionally, QR codes can facilitate contactless payments, aligning with consumer preferences for hygiene and safety. However, retailers also face challenges, including technological integration with existing systems, potential security vulnerabilities, and the need for customer education to ensure widespread adoption. This study aims to provide insights into how retailers can effectively implement QR code payment solutions while navigating these challenges, ultimately enhancing their operational efficiency and customer satisfaction.

Keywords :

QR code payments, retail, contactless payments, security, technology integration, consumer education, payment systems, operational efficiency.

IntroductionA QR code, or Quick Response code, is a two-dimensional matrix barcode that has become increasingly prevalent in modern society. Originally developed by Denso Wave, a subsidiary of Toyota, in 1994, QR codes were primarily used in the automotive industry for tracking vehicle parts during manufacturing. However, their versatility and ease of use have led to widespread adoption across various sectors, including marketing, retail, healthcare,logistics.Unlike traditional barcodes, which are linear and store information horizontally, QR codes can store information both horizontally and vertically, allowing for the encoding of significantly more data. This flexibility enables QR codes to contain various types of information, such as website URLs, contact details, text messages, Wi-Fi network credentials, and even multimedia content.The encoding process of a QR code involves arranging black squares on a white background in a specific pattern based on the data to be stored. The encoded information can then be quickly scanned and decoded using a QR code scanner, typically found in smartphones and other mobile devices. Once scanned, the embedded information can trigger specific actions, such as opening a webpage, adding contact information to a phone's address book, or making a payment.QR codes offer numerous advantages for both businesses and consumers. For businesses, they provide a cost-effective means of disseminating information, enhancing brand visibility, and facilitating interactive marketing campaigns. Retailers, for example, can use QR codes to enable contactless payments, provide product information, or offer discounts and promotions. Consumers benefit from the convenience and efficiency of QR codes, allowing them to access information quickly and easily with a simple scan. With the increasing reliance on smartphones and mobile technology, QR codes have become an integral part of everyday life, facilitating seamless interactions between the physical and digital worlds.

Despite their widespread adoption, challenges remain in maximizing the potential of QR codes, such as addressing security concerns, ensuring compatibility across different devices and platforms, and optimizing user experience.

Review of literature

Jay Sang Ryu (2013) In response to the trend toward ubiquitous mobile communications, this study compares shopping-related personal characteristics and behaviour of QR code users with those of non-users. Data was collected from 258 university students in the United States. The study concludes with a section that discusses the implications for retailers to develop more effective mobile marketing communications using QR codes and suggested directions forfuture research.

Jae Hwa Chang (2014) A QR code is very stable, such that it can be used for a long time without loss of quality. Producing and adding QR codes to a journal costs nothing; therefore, to increase the visibility of their journals, it is time for editors to add QR codes to their journal QR codes are useful for journals, individual articles, and even individual audio or video files and supplements. All journal editors would benefit from incorporating these simple QR code techniques into their publication practices

Albastroiu, Irina, Felea, Mihai (2015) The progress registered in the field of information and communication technologies has induced significant changes in the purchasing behaviour of the consumers who nowadays want simultaneous use of online and offline channels within the same shopping experience. Results of the study indicated that respondents know the applicability of QR codes and have used codes for accessing information about products and for online purchases and they consider that QR codes contribute to the improving of the shopping experience.

Elif Ozkaya, H. Erkan Ozkaya, Juanita Roxas, Frank Bryant and Debbora Whitson (2015) In recent years, various institutions have adopted the use of two dimensional bar codes, also known as QR (quickresponse) codes, for encoding information such as URLs that can be read by smartphones, digital tablets and other electronic devices. These codes can serve as a vehicle to evoke a consumer response or some type of behaviour. Their main benefit is that users of smartphones are alleviated from the tedious task of typing and searching to access information. Interestingly, being an early adopter has a negative relationship with QR code usage. Additionally, perceived usefulness of the QR code and up-to-date electronic device knowledge do not have significant relationships with QR code usage rate.

Akilesh pandey (2020) Visual Cryptography (VC) is based on the idea of breaking the original secret image into several partitions called as shares and decrypting with the human visual system. Given the security aspect of the hidden sharing system, security is lacking in Visual Cryptography shares. Previous related research has demonstrated the possibility of cheating VC by various methods. Attackers can complete both the cheating and the modification of the VC process without the VC participants being noticed. . This highlights that the protection of QR codes from some unknown sources can be authenticated using our scheme. Lastly, experimental results and comparisons are provided to demonstrate the viability and benefits of the proposed scheme.

Moniral Islam (2020) Communications entered a new era with the advent of mobile phones. The technology has been evolving continuously over the past few years enabling us to perform a lot of functions hitherto beyond our comprehension even a decade back. We can now use our "smartphones" to sur purchase across e-commerce platforms, monitor our gadgets keep a tub on our health through a plethora of "applications" which are very much a part of our everyday existence. QR (quick response) codes are one such application which is now as equipped with a scanner application. The main aim is also to understand the level of awareness and adoption of the technology among the respondents and to determine the reasons behind using it.

Aulia Tiara Imani and Achmad Herlanto Anggono (2020) The purpose of this study is to identify the factors that can influence the behavioral intention and the actual usage for using the QR Code feature in mobile payment to perform transactions in offline merchants. The result indicates that the Habit is the most significant factors to influence Behavioral Intention. While the others, namely Behavioral Intention, Facilitating Conditions, Hedonic Motivation, and Performance Expectancy influence to Actual Usage and Behavioral Intention.

Suzana Zambri , Siti Aishah Hasani , Maslina Abdul Aziz , Nor Aziah Daud, Nurulhuda Noordin and Syahida Hasssan(2021) Quick Response (QR) codes are increasingly visible in various fields. With advances in QR code, mobile shopping is becoming one of the most important channels in the retail industries. The aims of this research are to discover the willingness of the Malaysian university community to use QR codes in the buying process using smartphones as well as their perception about the functionality and usefulness of QR Codes. Through review of literature and responses from interviews, the article firstly clarified the characteristics and applicability of the QR Codes, especially in retail. This is a pioneering work for Malaysian literature, as there are limited studies that have explored issues concerning the use of QR codes in the mobile buying process.

Dr. Rajeev Tripathi, Dr. Santosh Kumar Dwivedi(2021) 9QR Codes, barcodes, and RFID are all methods for encoding vast quantities of data in a small space. They provide benefits like as speed, labor savings, and cost savings, among others. These codes can be used in libraries as paper-free labels, library ID cards, and for

acquiring information from a librarian, library instruction, and also for marketing. The study compares and contrasts barcodes, QR codes, and RFID, as well as their properties, applications, and operating components. A barcode is a machine-readable visual representation of data about the object to which it is attached.

Yelleti Meghana(2021) This paper investigates the innovation that associated this present reality to the computerized with a single tick and made our lives easy. QR codes made lives simpler with a remote sensor framework that checks the information, holds the information, and offers the information with no time, which has a high clear and putting away limit. The quantitative paper comprises of the thought, history of the codes which transformed us. It likewise has an investigation of the creating innovation in the grid codes that are attempting to be more made sure about and simpler. The discoveries furnished the chance of being acquainted with the developing innovation around and furthermore improved renditions of them.

Sayuti, Mariatul Qibtiyah, Hadri Hasan, Muhammad Sibawaihi, Nasbah(2023) This article is the result of Community Service (PkM) at the Of ice of Religious Af airs (KUA) Pelayangan District, Jambi City. KUA Pelayangan as one of the public service agencies must be able to provide public servants, especially digital public services, which at this time have become a necessity for people in the digital era. One alternative form of service digitization is by applying the Quick Responses Code (QR Code). The PkM team provided assistance to Pelayangan KUA employees to utilize the QR Code in serving the community. By using the Asset Based Community Development (ABCD) method which has the principle that everything leads to the context of understanding and internalizing assets, potential, strength and utilization independently and maximally.

S. Shanthi1 and G. Dhanalakshmi2(2023) Digitalization, new payment facility and better customer knowledge have considered as the major drivers for the growth of Indian digital payment systems. Majority of the research studies arrived mixed conclusions which need to be re examined. The study observed that among the socio-economic variables only education factor was positively related with fiscal Further, fiscal sub factors especially, convenient, good payment modes, spending less time were strongly positively related with purchase intention indicator and it was concluded that customers chosen digital payments for convenient mode, less time, user friendly application, safety and security.

Manushree Sahay, 2Dr. Sandeep Vanjale, 3Prof. Madhavi Mane(2023) The economic benefits and cons of using SaaS (software as a service) are not without debate. The security risks associated with SaaS prevent some consumers and service providers from using it. This article highlights the flexibility and use of SaaS in a number of contexts. Data security, application security, and SaaS deployment security are only some of the SaaS security challenges that will be investigated next. The most often reported kind of fraud using QR codes as an attack vector is social engineering, sometimes known as phishing. QR codes on cell phones have exploded in popularity in assembly lines for automobiles.

Prof. Sapna Rangari, Anshul Thakre, Aniket Potbhare, Shreyash Gajbhiye,(2023) Indian Railway the world's largest human transport system, is currently facing a considerable number of issues, such as the ability to secure a seat in case of a sudden cancellation or disembarkation at a destination where other waitlisted passengers can board and reach their destination, thus preventing unauthorized passengers from boarding without a ticket and subsequently purchasing one from the TC, thereby reducing the burden on the passenger to carry a physical ticket.

Willson Winata, Sharyanto, Bernadus Gunawan Sudarsono(2024) PT Panca Traktor Indonesia is a company that focuses on sales and service. Currently, PT Indonesia still does not have a computerized system related to tracking and tracing tractor units, so customers do not know when the goods are delivered and where the goods are. Delivery is only via short message applications such as whatsapp and via telephone Therefore, to handle these problems, a tracking & tracing application using web-based QR code technology was created, (UML), PHP as a programming language and MySQL as a database. With this application, it is expected to facilitate companies and customers in tracking and tracing tractor units.

Objective

The Objective of the study is to examine the benefits for retailers in utilization of QR codes and to identify the problems andchallenges faced by retailers in QR code usage.

Methodology

The Research design for this study is analytical and method is mixed sampling method and then the data is collected from the retail shops in Coimbatore total 80 respondents .Data collection involved primary data gathered through a structured questionnaire and secondary data source from journals and articles. For data analysing , tools include simple percentage methodand ranking will be utilized.

Analysis

Simple Percentage Method

Simple percentage analysis involves examining data or information and expressing it as percentages to understand proportions, changes, or relationships more easily.

Formula

Percentage $=$ Number of respondents $* 100$

Total no of respondents

RANKING

Ranking refers to arranging items, individuals, or entities in a particular order based on certain criteria or attributes. It involves assigning a position or ordinal number to each item according to its relative importance, value, or performance compared to others in the set.

TABLE SHOWING THE SIZE OF BUSINESS

PARTICULARS	NO OF RESPONDENTS	PERCENTAGE
Micro	14	17.5
Small	26	32.5
Medium	32	40
Large	8	10
TOTAL	80	100

INTERPRETATION

From the above table it is inferred that 17.5% of the respondents are selected micro scale od business , 32.5 % of the respondents are selected small scale of business, 40% of the respondents are selected medium scale of business and10% of the respondents are selected large scale of business.

INFERENCE

Majority 40% of the respondents are selected medium size of business

TABLE SHOWING HOW RETAILERS KNOW ABOUT THE QR

CODE

PARTICULARS	NO OF RESPONDENTS	PERCENTAGE
In store	24	30
Produced packaging	29	36.25
Marketing email	16	20
Social media post	11	13.75
TOTAL	**80**	**100**

INTERPRETATION

From the above table it is inferred that 30% of the respondents are known by in store to discover qr code , 36.25% of the respondents are known by produced packaging , 20% of the respondents are known by marketing email and

13.75 % of the respondents are known by social media post.

INFERENCE

Majority 36.25% of the respondents are known by produced packaging

TABLE SHOWING THE FACTORS INFLUENCING RETAILERS TOADOPT QR CODE

PARTICULARS	NO OF RESPONDENTS	PERCENTAGE
daptation to changing consumer behaviour	24	30

PARTICULARS	NO OF RESPONDENTS	PERCENTAGE
Environmental sustainability	32	40
Contactless transaction	22	27.5
Cost effectiveness	2	2.5

| TOTAL	80	100

INTERPRETATION

From the above table it is inferred that 30% of the respondents are influenced by Adaptation to changing consumer behaviour , 40% of the respondents are influenced by Environmental sustainability, 27.5% of the respondents are influenced by contactless transaction and 2.5 % of the respondents are influenced by cost effectiveness.

INFERENCE

Majority 40% of the respondents are influenced by environmental sustainability

CHART REPRESENTS FACTORS INFLUENCING RETAILERS TO ADOPT QR CODE
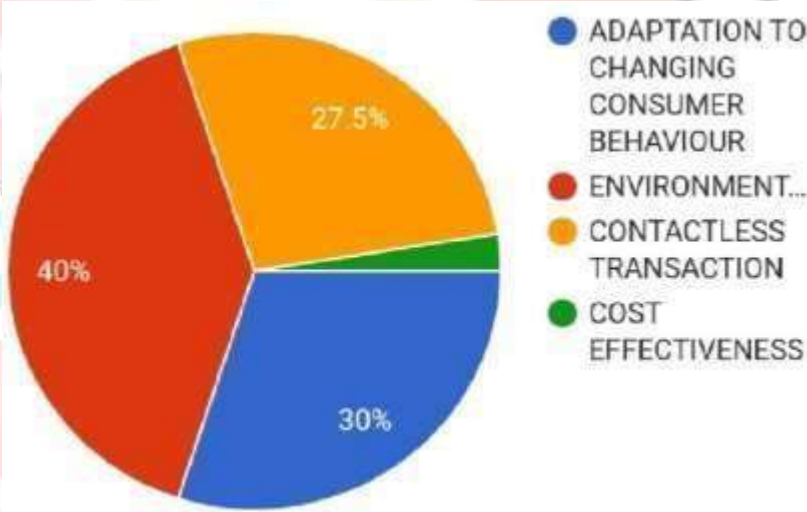
SECURITY AND PRIVACY IMPLICATION OF IMPLEMENTING QR CODE INYOUR RETAIL OPERATION

PARTICULARS	RANK 1	RANK 2	RANK 3	RANK 4	TOTAL SCORE	FINAL RANK
Data privacy	18(1) 18	55(2) 110	3(3) 9	4(4) 16	153	IV
Malicious content	2(1) 2	22(2) 44	51(3) 153	5(4) 20	219	I
Phishing attacks	28(1) 28	27(2) 54	18(3) 54	7(4) 28	164	III

Data interception	29(1)	15(2)	28(3)	8(4)	175	II
	29	30	84	32		

SIMPLE PERCENTAGE ANALYSIS:

- Majority 40%   of the respondents are selected medium size of business

- Majority 36.25% of the respondents are known by produced packaging

- Majority 40% of the respondents are influenced by environmental sustainability

RANKINGS

- Majority of the respondents are ranked 1st for malicious content

SUGGESTIONS

Based on the study suggested to create user education through social media and by conducting campaigns and also Itis suggest to improve the visibility of scanner by optimal size of QR code , scanning speed of QR code and technical issues. Regulating standard protocols to use QR code and precising the standards of QR code to avoid dilemma in multiple standards.Updating software & user feedback mechanism to overcome the compatibility issue is suggested based on study.

CONCLUSION

This study concludes the Implementing QR codes in retail operations offers significant benefits, such as faster transactions, enhanced customer engagement, cost saving and improved tracking and analytics. QR codes serve as a powerful marketing tool, enabling retailers to engage customers with personalized promotions and product information. However, challenge sexist, including ensuring widespread customer adoption, addressing data security concerns, and making upfront investments in technology and staff training. Despite these challenges, leveraging QR code technology can enhance the retail experience by improving efficiency, convenience, and customer engagement. To overcome the challenges like quality printing, optimal size,user education and security measure are expected to be adopted by the Retailers.