



International Journal of Markets and Business Systems

ISSN online: 2056-4120 - ISSN print: 2056-4112

<https://www.inderscience.com/ijmabs>

Attributions of QR code-driven perceived flow on customer satisfaction

Wajdy Omran

DOI: [10.1504/IJMABS.2025.10071790](https://doi.org/10.1504/IJMABS.2025.10071790)

Article History:

Received:	25 November 2024
Last revised:	21 January 2025
Accepted:	08 March 2025
Published online:	27 June 2025

Attributions of QR code-driven perceived flow on customer satisfaction

Wajdy Omran

Department of Management,
School of Economics, Management and Political Science,
Centre for Research in Economics and Management (NIPE),
University of Minho,
Campus de Gualtar, 4710-057 Braga, Portugal
ORCID: <https://orcid.org/0000-0002-5458-1571>
Email: id9909@alunos.uminho.pt

Abstract: Integrating QR codes into customer experiences is crucial for bridging physical and digital realms. Understanding their influence on satisfaction is vital in technology-driven marketing. This study examined the attributes of QR code technology on perceived flow, influencing customer satisfaction. A quantitative methodology was employed, collecting data from 620 Syrian respondents through an experiment involving a DiGiShi promotional poster with a QR code and using SPSS tools such as T-test/regression to examine relationships among the variables. The findings showed a positive significant relationship between the attributes of QR code usefulness, acceptance, feasibility, and perceived flow and the positive influence of perceived flow on customer satisfaction. The study extends technology acceptance theories TAM/UTAUT to digital marketing, highlighting its relevance in QR code interactions. Findings emphasise the design of user-friendly QR codes to enhance satisfaction. Businesses can leverage these insights to optimise digital strategies, ensuring QR codes are functional tools for interaction.

Keywords: QR code; perceived flow; usefulness; acceptance; feasibility; customer satisfaction.

Reference to this paper should be made as follows: Omran, W. (2025) 'Attributions of QR code-driven perceived flow on customer satisfaction', *Int. J. Markets and Business Systems*, Vol. 6, No. 1, pp.46–65.

Biographical notes: Wajdy Omran is presently engaged in doctoral studies, pursuing a PhD with a specialisation in Management, specifically centered on Marketing and Strategy, at the University of Minho. He has previously attained a Master's degree in Marketing Management from the Polytechnic Institute of Coimbra, ESTGOH. His research pursuits are predominantly situated within the domains of tourism marketing, tourist engagement, and immersive technology.

1 Introduction

Technological shifts have reshaped industries, with marketing mainly influenced by digital advancements that enable more seamless, interactive consumer experiences (Korn, 2024). Quick Response code (QR) is a two-dimensional barcode that stores substantial data in horizontal and vertical directions (Haridas Tekale, 2024). Denso Wave released QR codes in 1994 through its Toyota subsidiary as an innovation that surpassed barcodes to provide businesses with an advanced customer interaction method (Barve, 2022). The fintech industry's global adoption of QR codes is high because they revolutionise financial transactions (Bhattacharya and Singla, 2024). QR codes establish secure, fast, contactless payment systems to transform customer interaction with financial services (Yamin and Abdalatif, 2024). Mobile payment systems incorporating QR codes offer wider financial service access specifically for areas lacking traditional banking systems (Tay et al., 2022). Digital commerce has removed economic barriers, so consumers now make different online choices.

A company using QR code data can produce customised financial services by better understanding consumer behaviour patterns to help with lending decisions and product recommendation efforts (Haridas Atmaram Tekale, 2024). QR codes have expanded into diverse commercial sectors, which have made the impact of these codes on user satisfaction and experience a critical factor in digital tool consumer research (Abdullah et al., 2023).

Perceived flow refers to the “absorb state where users interact, leading to increased satisfaction” (Eren, 2022). Users experience better interaction with information through QR codes because these codes deliver immediate access to necessary data (Khanafer et al., 2022). The commodity nature of QR codes improves user satisfaction through shopping and payment processes by creating greater convenience and reduced friction (Alam et al., 2024). Comprehensive access to relevant content delivered through QR codes leads to customer satisfaction, making them critical components of marketing-oriented and fintech solutions. User satisfaction evaluation through recording becomes essential to determine how thriving strategies serve their purpose and optimise user experience (Zhong and Moon, 2022).

Previous studies examined the role of QR codes in enhancing customer experiences and satisfaction in different sectors. QR codes play a role in positively influencing purchase intention and satisfaction in online shopping, and the perceived flow is a major mediator of the relationship between the two (Abdullah et al., 2023; Ashrafi and Easmin, 2023). In physical retail, QR codes are used as a part of the customer experience to increase interest, informativeness, interactivity, and better omnichannel experience (Alexander and Kent, 2022). Moreover, research has depicted different aspects of QR code features and customer experience, emphasising a complex relationship between each feature and experience (experiential value) purchase intention (Alamoudi, 2022). However, in tourism, QR codes have been used to improve cultural tourist satisfaction and facilitate the collection of guest satisfaction feedback at destinations (Raimondi, 2024). Applying QR codes in business has proved to be an opportunity to fill the communication gap between companies and customers to improve their satisfaction and purchase behaviour (Bashir, 2022).

Research on QR codes and satisfaction (Eren, 2022; Rotsios et al., 2022), which occurs on the direct impact of the code on satisfaction, is missing the influence of perceived flow. These studies have omitted the role of QR code attributes usefulness,

acceptance, and feasibility associated with developing perceived flow, significantly influencing satisfaction. The functionality of QR codes for mobile learning has been investigated, but their contribution to making perceived flow between QR code features and satisfaction (Al-Bashayreh et al., 2022; Alamoudi, 2022). However, the lack of emphasis on perceived flow has a significant gap in understanding the effect of QR code attributes on satisfaction. This is important because it limits a holistic appreciation of how QR code designs can contribute meaningfully to customer satisfaction when leveraged concerning customer perceptions of flow.

This study aims to fill this gap by examining how QR code attributes (usefulness, ease of use, and acceptance) influence perceived flow, impacting customer satisfaction, particularly in culturally and economically distinct contexts like Syria.

Data were collected from 620 participants exposed to a DiGiShi promotional QR code. A quantitative research approach was adopted, and SPSS analysis was used to test the raised hypotheses.

The study is expected to provide theoretical implications by enhancing the understanding of perceived flow as a linkage between QR code attributes and customer satisfaction. Practically, this research will provide valuable insights into the fintech and digital marketing sectors by highlighting strategies to optimise QR code features for improved user experience and satisfaction. These findings can guide recommendations for enhancing the effectiveness of digital marketing campaigns and financial technology applications.

2 Literature review

2.1 The effect of QR code usefulness on perceived flow

Usefulness as a dimension of technology acceptance model (TAM) is the degree to which an individual believes that using a particular system/technology will enhance their performance in a specific context (Stiegemeier et al., 2022). In the context of QR codes, usefulness is defined as how users believe QR codes improve their shopping experience by providing quick, convenient access to relevant information and services, enhancing decision-making and satisfaction (Türker et al., 2022).

QR codes provide instant access to product details, promotions, and payment options, enhancing convenience and efficiency (Žurbi and Gregor-Svetec, 2023). QR codes simplify tasks by eliminating barriers like time or resource limitations, making interactions seamless (AlNajdi, 2022). This functionality enriches user experiences by bridging offline and online environments, ensuring satisfaction (Bashir, 2022).

The TAM is a theory that explains how people accept and use technology, with perceived ease of use and perceived usefulness being the predictors of technology adoption (Na et al., 2022). Unified theory of acceptance and use of technology (UTAUT) is a comprehensive model that integrates eight theories to forecast user intentions to use technology, with performance expectancy, effort expectancy, social influence, and facilitating conditions as predictors of technology acceptance (I. Ali and Warraich, 2024).

Usefulness is a factor that reflects a tool's ability to support task execution, influencing user adoption directly (Alsyounf et al., 2023). This also aligns with the perceived flow, where smooth and efficient interactions disseminated by usefulness can result in a state of focus and satisfaction (Lu et al., 2022). Research has investigated the

effect of usefulness on enhanced satisfaction. For instance, where QR codes are handy, they ensure higher user engagement by enabling users to achieve specific goals efficiently (Zhong and Moon, 2022). This aligns with Rotsios et al. (2022), who argue that tools that render activities more convenient and are aligned with user goals have the likelihood of leading to favourable experiences.

Arghashi and Yuksel (2022) suggest that the more helpful the tool, the greater it contributes to a smooth and pleasant experience, further increasing perceived flow. These results assist in confirming the idea that perceived usefulness is the key to creating flow in user experiences. While important, the usefulness of QR codes has not been thoroughly studied in localised marketing environments, particularly in developing countries like Syria.

Previous studies have focused on developed or generalised market environments without considering the impact of economic and cultural determinants on consumers' perceived benefits of QR codes (Mazhar et al., 2024). Within markets characterised by differentiated consumer behaviours, inferior digital infrastructure, or differentiated preferences, there is a need to understand the role of QR code utility in flow induction (Azizah and Bintoro, 2023). This study addresses this deficit by looking into the effects of customers' perception of the usefulness of QR codes on customer engagement and satisfaction in developing economies and the psychological factor of flow. The following hypothesis is developed:

H1: QR code usefulness has a positive effect on perceived flow.

2.2 The effect of QR code acceptance on perceived flow

Benoit-Dube et al. (2023) define QR code acceptance users' willingness and preparedness to use and adopt QR codes based on their perception of easy use, functionality rates, and confidence in the technology. Acceptance describes the belief the users have towards the capacity for QR codes to function and deliver as expected with any situation scenarios provided. QR code integration enriches customer experience by facilitating instant access to information like product specifications and promotions. It makes transactions faster and removes barriers like long queues, making processes practical and convenient (Damodharan, 2022). It also increases convenience, allowing customers to interact with businesses in real-time easily (Abdullah et al., 2023).

This concept aligns with the TAM and UTAUT, highlighting two primary factors: usefulness, simplicity, and efficiency (Canca and Perdahçı, 2023). Earlier studies have highlighted that QR code technology positively contributes to transaction efficiency and its adoption in e-commerce and mobile payment systems. The adoption is rooted in such factors as ease of use and trust, making it easier for users to incorporate QR codes into their activities (Azizah et al., 2022; Türker et al., 2022). Smooth integration that minimises effort and interruptions indirectly promotes conditions for perceived flow, where users are focused on uninterrupted interaction (Partarakis and Zabulis, 2024). However, research on the direct influence of QR codes on perceived flow is still limited, especially in rural markets (Ashrafi and Easmin, 2023).

Although QR code utilisation is widely common globally, there is still a lack of research into the specific implications QR codes have in some cultural and economic contexts (Bradford et al., 2022). Although businesses in Syria have just started incorporating such tools, understanding their implications for customer engagement is

paramount (Daood et al., 2024a). Moving from QR code acceptance to perceived flow, this paper addresses a lack of localised research while shedding light on effective marketing strategies in emerging markets.

H2: QR code acceptance positively impacts perceived flow.

2.3 *The effect of QR code feasibility on perceived flow*

In QR codes, feasibility is described as presenting information quickly and reliably, such as product details, promotions, or event updates, tailored to the user's situation. It comprises speed in scanning, accessibility across devices, reliability of content delivery, and relevance of the information delivered (Bylappa et al., 2022).

Feasibility in QR codes facilitates quick access by respective users to information such as travel itineraries, restaurant menus, or instructional guides to meet specific needs (Tan et al., 2023). Consumers can find this information most useful when performing tasks such as moving around strange surroundings, rapidly ordering food, or mounting products with no time wasted, removing impediments of miscommunication and manual searches (Gaudeul and Krawczyk, 2023). QR codes enable speed, accessibility, and reliability, and feasibility improves user experience by effectively answering practical needs and alleviating frustrations, thus encouraging hassle-free and pleasurable interaction (Tan et al., 2023).

Previous studies have explored the role of feasibility in enhancing user engagement across various digital platforms. Earlier research found that high feasibility in digital tools positively influences user experience by making interactions seamless, reliable, and rewarding. Similarly, studies on digital engagement tools (Nwosu et al., 2022; Partarakis and Zabulis, 2024) have linked feasibility to user satisfaction, highlighting its importance in fostering a positive user experience. These findings establish feasibility as a key factor influencing flow and satisfaction in digital interactions.

Despite its importance, the feasibility of QR codes has been insufficiently studied in emerging markets like Syria, where technological infrastructure and cultural factors may impact user perceptions (Daood et al., 2024b). Existing research has focused on developed markets, overlooking contextual challenges such as limited digital literacy, inconsistent connectivity, or varying content expectations. This gap restricts our understanding of how feasibility contributes to perceived flow in such contexts. Addressing this gap is critical, as QR codes are increasingly adopted in emerging markets, necessitating insights into how their feasibility influences user satisfaction in these environments.

In this sense, the following hypothesis is proposed:

H3: QR code feasibility has a positive effect on perceived flow.

2.4 *The effect of perceived flow on customer satisfaction*

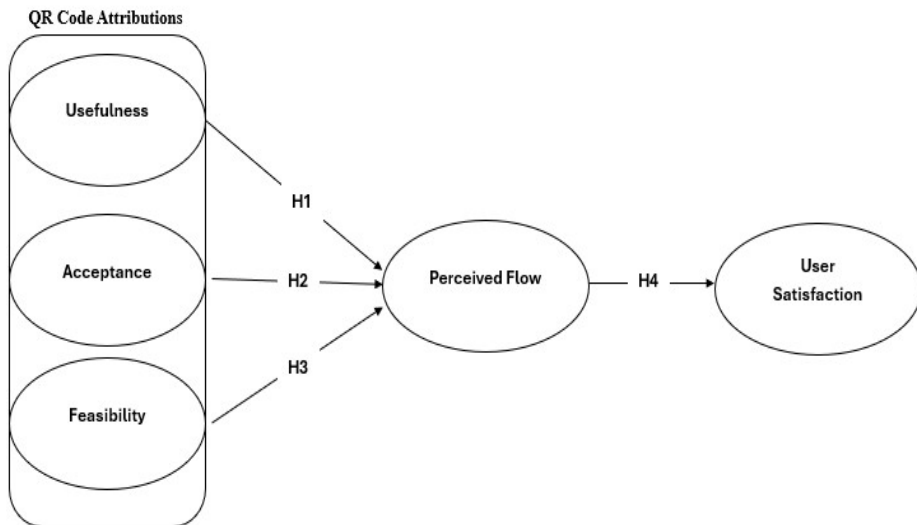
Perceived flow is a mental state characterised by full concentration, seamless interaction, and ease while performing an activity, where individuals feel focused and undistracted (Pujol et al., 2024). In the context of QR codes, perceived flow refers to the mental state where users experience complete focus and ease while interacting with the technology, such as scanning a QR code and smoothly accessing the associated content or features without encountering obstacles (Abdullah et al., 2023). This happens when the process is

quick, smooth, and aligns with the user's expectations, allowing them to efficiently complete tasks like accessing product information or checking event schedules (Ruangkanjanases et al., 2024). Distractions, such as slow loading times, complicated navigation, or unclear content, are minimised in this state (Pham and Duff, 2022). When these factors are absent, the user can focus entirely on their goal, enhancing the overall experience. This flow is crucial for efficient and satisfying interactions in the context of QR codes.

Customer satisfaction is the degree to which a product or service meets or exceeds the customer's expectations, positively evaluating their overall experience. It reflects the alignment between customer expectations and the value delivered, influencing their likelihood of repeat use or recommendation (Abdullah et al., 2022).

Customer satisfaction, shaped by seamless and engaging QR code interactions, reflects the user's immediate experience and influences their broader attitudes toward the brand or technology (Mao et al., 2022). Previous studies highlight that positive emotional states fostered through flow experiences are key contributors to attitude formation, where satisfaction bridges experience and behaviour (Bakhitah et al., 2023; Mazhar et al., 2024). Users can focus entirely on their goals by minimising distractions, such as slow load times or confusing navigation, and streamlining the process (Sinemus et al., 2022). This increases satisfaction as tasks feel effortless (Pratas and Oliveira, 2023). Additionally, the seamless experience encourages users to return, improving retention and enhancing decision-making, which can contribute to higher conversion rates (Frans et al., 2024). In businesses, fostering perceived flow can lead to more successful interactions, where users are more likely to complete desired actions, such as purchases or sign-ups (Azizah and Bintoro, 2023). Figure 1 illustrates the study's conceptual model

Figure 1 Study framework



Source: Author creation

Research has repeatedly linked the flow to satisfaction across digital contexts. Novak et al. (2000) found that flow enhances positive attitudes and repeat behaviours toward websites, boosting purchase likelihood. Positive online experiences foster emotional

engagement, translating into higher satisfaction and loyalty. These findings position flow as a critical variable in digital marketing strategies (Rotsios et al., 2022).

While its general impact is well-documented, flow's role in QR code-driven marketing remains unexamined (Kadhafi and Surianto, 2022). Existing studies overlook how interactive tools contribute to experiences and their subsequent effects on satisfaction. Moreover, research rarely addresses how these dynamics play out in specific markets, particularly those with distinct cultural and economic influences. This gap necessitates targeted exploration to uncover actionable insights in these contexts.

H4: QR code perceived flow has a positive effect on customer satisfaction.

3 Methodology

3.1 Sample and procedures

The research used an experimental design to examine the impact of QR code features on perceived flow and customer satisfaction. A QR code was created using QR Code Monkey, a web-based tool, and graphically designed using Photoshop to achieve theoretical design principles. These modifications improved visual appeal and brand consistency for DiGiShi, a local e-commerce company with no prior QR code implementation. The finalised QR code was featured on an advertising poster with the company's branding colours and product imagery to attract attention while maintaining clarity. The advertising poster was displayed strategically to encourage interaction. Participants scanned the QR code and then were redirected to DiGiShi's website for a hands-on digital engagement central to the research. This ensured participants' responses reflected direct exposure to the experimental setup. Data were then collected using a structured questionnaire on a 5-point Likert scale to measure perceptions of usefulness, acceptance, feasibility, flow, and satisfaction of the QR code. Convenience sampling was used to recruit 100 participants representing Syrian consumers. Two main parts existed in the survey. The first collected demographic data, such as gender, age, and level of education. The second was directed to constructs relevant to the research objectives, using validated instruments for response measurement. Participants needed experience with the QR code to ensure that feedback was experience-based. No exclusion criteria were set formally, but the research informally excluded individuals outside the target market of active consumers utilising the experimental nature of the interaction. This approach ensured the relevance and quality of the data to the study objectives.

3.2 Data analysis

Data analysis utilised Statistical Package for the Social Sciences (SPSS), which is recognised in social science research for its versatility and precision (Sen and Yildirim, 2022). Various techniques were applied to test research hypotheses and establish the correlations among variables. The reliability of the measurement scales was tested through Cronbach's Alpha to check for the internal consistency of the constructs. This ensured that QR code attribute scales (usefulness, acceptance, feasibility) were reliable and could be applied to subsequent analyses. Simple linear regression assessed the impact of each attribute on perceived flow and provided information on their influence on the user experience. Multiple linear regression succeeded in representing the combined

influence of these attributes, giving a broader perspective on their interaction. One-sample t-tests were applied to validate hypotheses and assess statistical significance, confirming the relationships aligned with the study's objectives. These methods ensured robustness and accuracy, delivering clear insights into the dynamics of QR code-enabled experiences.

4 Results

The demographic analysis of the expanded sample ($n = 620$) revealed a slight female majority, with women accounting for 53% compared to 47% of men (Table 1). Regarding age distribution, the largest group of participants was aged 26–35, representing 40% of the sample. Participants aged 16–25 followed at 28%, while those aged 36–45 comprised 19%. The over-45 group comprised 8%, and the smallest group, under 16 years, accounted for 5% (Table 2). Regarding education, 40% of respondents held university degrees, making up the most considerable proportion of the sample. Those with intermediate institute-level education followed at 27%, while 21% had postgraduate qualifications. Finally, 12% of participants completed only high school or less (Table 3). The sample reflects a predominantly young and educated demographic, with university graduates forming a considerable proportion.

Table 1 Demographic characteristics of the study sample

<i>Characteristic</i>	<i>Category</i>	<i>Frequency</i>	<i>Percentage (%)</i>
Gender	Male	291	47
	Female	329	53
Age	Under 16	31	5
	16–25	174	28
	26–35	248	40
	36–45	118	19
	Above 45	49	8
Educational Level	High school or lower	74	12
	Intermediate institute	167	27
	University graduate	248	40
	Postgraduate	131	21

Table 2 Results of regression analysis for QR code attributes and perceived flow

<i>Predictor variable</i>	<i>R</i>	<i>R²</i>	<i>Adjusted R²</i>	<i>F</i>	<i>p-value</i>	<i>β₀</i>	<i>β₁</i>	<i>t-value</i>
Usefulness	0.339	0.115	0.107	15.562	<0.001	2.621	0.372	3.941
Acceptance	0.307	0.094	0.087	11.883	<0.05	2.401	0.356	3.448
Feasibility	0.318	0.101	0.093	12.972	<0.05	2.509	0.364	3.608

Table 3 Results of regression analysis for perceived flow and customer satisfaction

<i>Predictor variable</i>	<i>R</i>	<i>R</i> ²	<i>Adjusted R</i> ²	<i>F</i>	<i>p-value</i>	<i>β</i> ₀	<i>β</i> ₁	<i>t-value</i>
Perceived flow	0.368	0.135	0.129	17.102	<0.001	2.719	0.391	4.137

The results of Cronbach's Alpha value showed high reliability for all constructs: perceived usefulness (0.85), acceptance (0.82), feasibility (0.81), perceived flow (0.88), and customer satisfaction (0.87), all exceeding the acceptable threshold of 0.7. These values confirm the internal consistency and reliability of the scales.

The one-sample t-tests to assess the significance of observed relationships revealed notable results. For perceived usefulness, the mean score was 4.32, significantly higher than the neutral value of 3, with a t-value of 6.741 and a p-value less than 0.001. This indicated a strong positive impact on perceived flow. Acceptance also showed a significant positive effect, with a mean score of 4.12, a t-value of 5.234, and a p-value less than 0.001, confirming its influence on flow. Feasibility also registered a mean value of 4.15, with the t-value at 5.651 and the p-value at less than 0.001, demonstrating its significant relationship with flow and satisfaction. All these suggest the uniform and substantial impact of QR code qualities on customer engagement, which validates that all tested variables had a significant and consistent influence.

4.1 *Testing hypotheses*

4.1.1 *Effect of QR code attributes on perceived flow*

The analysis of the first research question revealed statistically significant positive relationships between perceived flow and the QR code attributes of usefulness, acceptance, and feasibility. Linear regression showed that usefulness had the highest impact, with an F-statistic of 15.562 and a p-value of less than 0.001. An adjusted R^2 of 0.115 indicated that 11.5% of the variance in perceived flow was attributed to this dimension ($R = 0.339$). Furthermore, acceptance positively influenced perceived flow with an F-statistic of 11.883, a p-value of <0.05, and an adjusted R^2 of 0.094. Feasibility considerably affected perceived flow, as evidenced by an F-statistic of 12.972, p-value less than 0.05, and adjusted R^2 of 0.101. These findings identify these qualities' pivotal role in improving users' experiences with QR codes.

4.1.2 *Relationship between perceived flow and customer satisfaction*

The second research question's simple linear regression test revealed a robust positive correlation between perceived flow and customer satisfaction. Perceived flow significantly increases satisfaction, and an adjusted R^2 of 0.135 indicates that 13.5% of the variance in customer satisfaction is accounted for by perceived flow. This evidence supports perceived flow mediating the enhancement of customer satisfaction with QR code experiences.

5 Discussion

The study examines the usefulness of QR code technology and its acceptance and feasibility in affecting customers' perceived flow and satisfaction. It bridges the functional aspects of QR code usage and its psychological implications on customer interaction. All propositions are confirmed throughout the findings, revealing the relationship among technological attributes, psychological involvement, and customer satisfaction.

H1 suggests that QR code usefulness has a significant positive relationship with perceived flow. This finding is consistent with prior TAM and UTAUT research emphasising utility in technology adoption (Camilleri et al., 2023; El Archi and Benbba, 2023). When users perceive a tool as beneficial and capable of fulfilling their needs, they are more likely to engage deeply with it. The strong relationship observed here can be attributed to the seamless integration of functional benefits in QR code design, which reduces effort and enhances efficiency (Djanir et al., 2024). This relates to intrinsic motivation, where users use tools aligning with their goals. Consumer behaviour theories suggest that the perceived ease and relevance of tools like QR codes reduce cognitive resistance. By delivering immediate, relevant value and minimising cognitive load, QR codes foster smoother engagement and promote a state of flow in users (Alam et al., 2024). This underscores the importance of prioritising practical utility in the design of digital tools. This underscores the importance of prioritising practical utility in the design of digital tools.

H2 confirms that QR code acceptance significantly influences perceived flow. This relationship aligns with consumer behaviour theories, such as TAM and UTAUT, which posit that user acceptance is a critical determinant of usability (Ruangkanjanases et al., 2024). The results are further corroborated by earlier research that studied the connection between the positive disposition toward technology and user experience. Users' psychological foundation for such relationships hides behind the attitude of readiness and trust in QR codes as reliable recordings. Such trust is behavioural because it can reduce the perceived risk and increase confidence in utilising technology.

Additionally, psychology highlights that familiarity and perceived reliability enhance users' willingness to engage themselves in the interaction. Users who accept the technology confidently approach interactions, enabling them to engage in the experience fully. This reflects a broader trend of increasing digital literacy and openness to technology among consumers, which enhances their ability to derive value from innovative tools.

H3 suggests that QR code feasibility significantly positively affects perceived flow. This finding is consistent with prior studies that emphasise reducing barriers to engagement. Ease of use and accessibility are critical factors in fostering flow states. QR codes' simplicity and intuitive design ensure users can engage without frustration or confusion (Abdullah et al., 2023). From a psychological standpoint, reducing complexity helps lower cognitive effort, enabling users to focus more fully on the interaction. Consumer behaviour theories also suggest that intuitive and accessible tools increase perceived control, which enhances satisfaction and engagement (Gross et al., 2023). This relationship can also be explained by insights from TAM and UTAUT, which emphasise the role of effort expectancy and perceived ease of use in technology adoption. When QR codes are easy to use, they provide a smooth and enjoyable interaction, allowing users to remain focused and satisfied.

H4 confirms that perceived flow has a significant favourable influence on customer satisfaction. This finding is consistent with previous investigations that link engagement experiences to positive emotional outcomes (Arghashi and Yuksel, 2022). The relationship observed in this study can be explained by the intrinsic motivation and enjoyment that flow states evoke. Flow enhances achievement and emotional gratification, deepening the user's connection to the interaction. Consumer behaviour theories suggest emotional experiences create lasting impressions, boosting satisfaction. This satisfaction provides immediate gratification and shapes positive customer attitudes (Abrar et al., 2022). Integrating functionality and engagement fosters trust and loyalty as satisfied users develop favourable perceptions of the brand or technology. Satisfaction serves as a reflection of immediate flow experiences and a driver of long-term attitudinal shifts. This aligns with digital marketing studies emphasising engaging experiences in enhancing customer perceptions (Tuti and Sulistia, 2022). Businesses can strengthen customer connections by creating interactive, enjoyable touchpoints, increasing satisfaction.

Although conducted in Syria, the study offers insights relevant to other emerging markets. Syria shares several key characteristics with other countries at similar technological and economic development stages as an emerging market (Soliman et al., 2023). These include evolving digital infrastructures, varied technology adoption rates, and shared cultural dynamics that shape consumer interactions with digital tools (Mustafa et al., 2025). Such factors provide a unique yet representative context for examining QR code interactions' psychological and behavioural dimensions. Therefore, this study's findings offer broader applicability to regions facing similar challenges and opportunities in integrating digital innovations into customer experiences (Yoo et al., 2023). By understanding how usefulness, acceptance, and feasibility influence perceived flow and satisfaction in Syria, businesses and policymakers in other emerging markets can derive actionable strategies to enhance technology adoption and engagement. This cross-context relevance underscores the importance of continued research in diverse settings, which not only deepens our understanding of digital consumer behaviour but also aids in the development of inclusive, globally informed digital marketing practices.

5.1 Theoretical contributions

This study has some theoretical contributions to technology-facilitated consumer engagement from the viewpoint of QR code attributes' role in determining perceived flow and customer satisfaction. Integrating constructs like usefulness, acceptance, and feasibility with technological theories provides a novel framework for understanding how digital tools influence consumer interactions. Addressing a gap in the literature, the research empirically examines the interplay between QR code functionality and consumer behaviour, particularly in Syria, where technology adoption faces unique challenges. The study enriches the theoretical foundation of consumer engagement by demonstrating how QR codes facilitate seamless experiences that drive customer satisfaction. It extends the understanding of perceived flow, highlighting its role in mediating the relationship between interactive technologies and satisfaction.

Additionally, the research builds on TAM and UTAUT by applying them to a novel domain, offering empirical evidence of their relevance to digital marketing tools. The findings also contribute to the literature on e-commerce and mobile marketing by focusing on attitudes towards purchasing and selling goods and how QR codes affect such attitudes and behaviours in digital settings. This research adds a new dimension that perceived flow will affect satisfaction by positing that experience can help one feel more satisfied with the technology used. These contributions offer further theoretical development to deepen existing models, illustrating their relevance in different cultural and technological contexts and suggesting directions for future research on these topics.

5.2 Practical implications

This study provides considerable implications that are essential to businesses as relevant to fintech and digital marketing, the application for improving customer satisfaction using QR codes. The findings suggest that companies can improve customer interactions massively by optimising QR codes for use, relevance, and functionality. It is especially pertinent in the digital payment systems and e-commerce sectors, where the experience you provide users is crucial.

QR codes are a fintech technology that simplifies transactions and reduces friction in the customer journey. For instance, financial institutions can incorporate QR codes into mobile banking apps or digital wallets for faster deposit funding or transfers. Thus, QR codes are embedded in various mobile payment platforms, such as transferring one to another via phone or paying bills without manually entering them. It helps users perform this task without placing much cognitive load. Any improvement through perceived flow, brought on by ease and efficiency, will delight the user. Hence, simplifying devices will strengthen customer trust and satisfaction in digital finance systems. In e-commerce, QR codes can improve product discovery and purchasing. It also shows QR codes offering quick, reliable access to product details and promotional discounts, influencing customer satisfaction. For instance, businesses will place QR codes on product packaging, print ads, or physical stores to guide customers to special product features, reviews, or time-sensitive offers. In this strategy, consumers can easily be engaged with the product, which rides with the growing popularity of personalised shopping experiences. One example is when customers scan a code on a product to immediately be sent to a customised landing page offering custom discounts, accessories, and upsell recommendations. It provides customers with an outstanding shopping experience without friction or rewards, leading to higher purchase intent and more satisfaction. Since QR code adoption is still nascent, especially in emerging markets like Syria, a company, in this case, can capitalise on the study by educating consumers to build consumer trust. If educational campaigns were to emphasise the ease and security of QR codes, a significantly increased acceptance rate could be had. In this case, fintech companies can work with local influencers or organisations for digital literacy programs to show the idea of QR code usage for payment and financial services. This is consistent with the study's suggestion that businesses must emphasise the usability and feasibility of QR codes as tools that cannot be regarded as inaccessible and valuable.

Additionally, the tools for implementing analytics permit businesses to follow how customers interact with QR codes. Capturing data on which QR codes are most scanned and content accessed and their effect on customer behaviour helps companies improve their marketing strategy. Let's say that an e-commerce brand decides to analyse which QR codes bring about a higher conversion rate or stay on the page for a more extended time and then improve the digital campaigns through this data. Likewise, fintech companies can track the usage of QR codes in the transaction process and pick up missing points or issues to improve the user experience continuously.

5.3 *Limitations*

However, several limitations should be noted in this study as it provides valuable insight into the correlation between the flow induced by QR codes and customer satisfaction. The principal constraint is dependence on a sample from one geographical location, possibly not mirror the general population of QR code users in various societies, demographics, or business markets. The findings might be generalised more fully to the consumption of digital technologies (including QR codes) with digital literacy, trust in technology, and familiarity with mobile devices that may qualify consumer interactions with digital technologies. Further, only immediate effects of perceived flow on customer satisfaction were studied, although satisfaction is continuous and evolves with each customer interaction with technology and the brand. However, a single-point measurement might not capture the long-term effect of QR code experiences on customer attitudes, repeat usage, and loyalty.

Furthermore, the study only addressed key dimensions of perceived flow, such as ease of use, accessibility, and content relevance, without exploring other aspects of flow, such as intrinsic motivation, concentration, and enjoyment. Another limitation is the lack of consideration for individual differences, such as age, technological familiarity, and motivation, which may significantly influence how consumers experience flow and satisfaction. The study also considers general QR code usage without considering the context or the environment in which QR codes are deployed (i.e., from a perspective at retail stores, restaurants, and events). The findings may be less applicable to broader situations, as these contextual factors may lead to more or less impact on flow and satisfaction.

5.4 *Scope for further research*

Such limitations could be addressed in future research with replication in diverse geographic regions and cultures to determine whether the association between perceived flow customer satisfaction is robust or varied across regions. Later, longitudinal studies could help illuminate the long-lasting ramifications of QR code interactions on customer loyalty, repeat usage, and brand advocacy, given the restiveness in satisfaction. A further enhancement of understanding how QR code presence affects customer satisfaction would be a closer look at the additional flow dimensions of emotional engagement, concentration, and cognitive absorption. Further research can also investigate the role that the visual or sensory design of the QR code (such as aesthetics and usability) plays in

achieving user satisfaction and the experience one feels about flow. Furthermore, examining how individual differences, e.g., age, digital literacy, and personality traits, moderate individuals' perception of the perceived flow and satisfaction from QR code interactions would be worthwhile. These factors can be explored to customise QR code strategies to targeted consumer segments. Also, it is essential to consider how the context of the environment in which QR codes are used affects satisfaction. Different flow experience possibilities might be induced by QR codes according to their environment, from retail settings to entertainment settings or leisure settings. Third, the latest technology, such as augmented reality (AR), virtual reality (VR), and artificial intelligence (AI), brings an exciting chance to research how they might contribute to the improvement of perceived flow and customer satisfaction in the QR code interaction. It also researches how QR codes align and can enhance customer experiences with other digital marketing instruments like mobile apps or social media.

6 Conclusions

This research aimed to explore the relationship between perceived flow and the relationship between QR code attributes (usefulness, acceptance, and feasibility) and their association with customer satisfaction. It was found that these attributes of the QR code are significantly positively related to the perceived flow and the perceived flow, which is positively associated with customer satisfaction. In digital marketing, the study contributes to extending technology acceptance models (TAM/UTAUT) to identify and respond to the implications of marketing implication designed on the QR codes for customer engagement. They offer practical insights for businesses and digital strategies seeking to optimise and take advantage of using QR codes as a medium to interact with. This is also interesting for future research using technology acceptance theories in digital marketing. They help to comprehend the emerging technologies' role in marketing and consumer behaviour. It will help to clarify how the perception of flow is connected to customer satisfaction on the one hand and the role that QR codes play in supporting customer engagement on the other hand. These results have actionable implications for marketers anywhere attempting to leverage QR codes to increase satisfaction and provide new approaches for research in digital marketing.

Declarations

The author has used AI (ChatGPT) to proofread and improve readability, and Grammarly Premium to correct typos and errors.

Conflicts of interest

The author declares that there are no conflicts of interest.

References

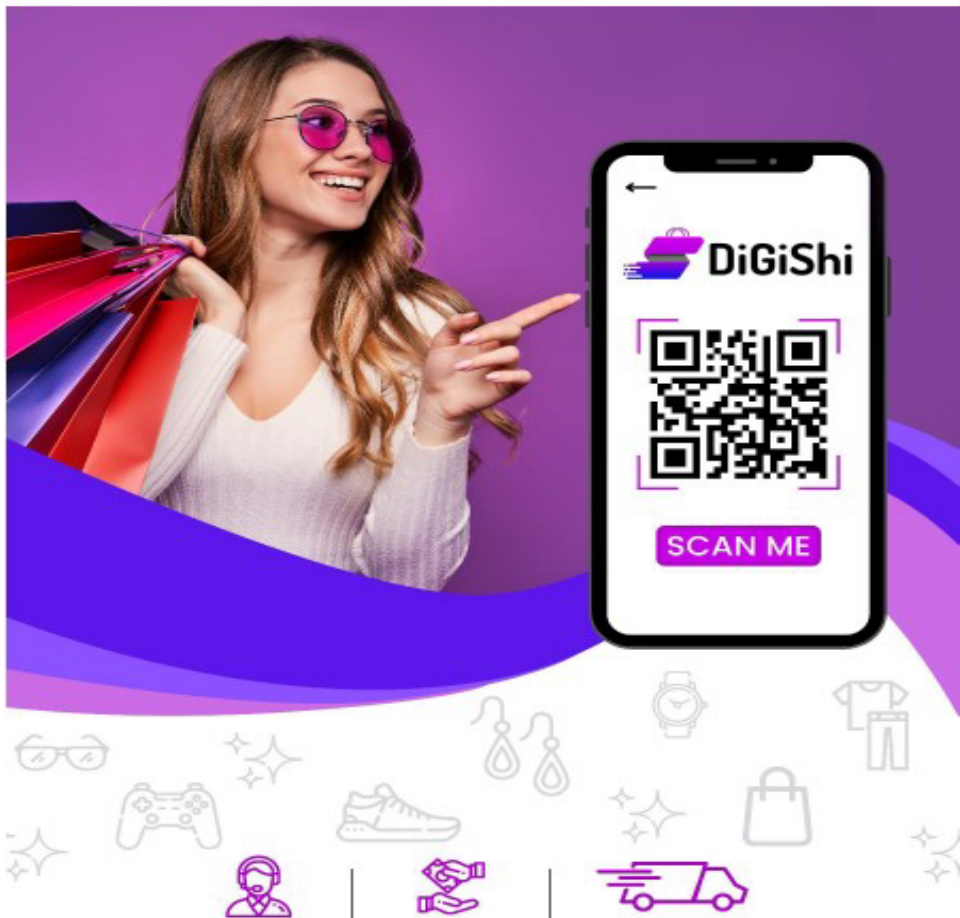
- Abdullah, B.S., Nawli, N.C., Zainuddin, S.A., Hassan, A.A., Ibrahim, W.S.A.A.W., Mohamed, A.F. and Zin, M.Z.M. (2023) 'Customer satisfaction and sustainable purchasing behaviour via QR code with the mediating role of perceived flow among Malaysian shoppers', *FIIB Business Review*, p.23197145231176950.
- Abdullah, B.S., Prabhu, M. and Othman, M.B. (2022) 'Analysing driving factors of customer satisfaction among telecommunication service providers in Kurdistan region', *International Journal of Engineering Business Management*, Vol. 14, p.18479790221111436.
- Abrar, K., Mian, A.K. and Zaman, S. (2022) 'How social gratification affects social network gaming habitual behavior. sequential mediation of flow experience and consumer satisfaction', *Global Management Journal for Academic and Corporate Studies*, Vol. 12, No. 1, pp.141–157.
- Alam, S.S., Ahmed, S., Kokash, H.A., Mahmud, M.S. and Sharnali, S.Z. (2024) 'Utility and hedonic perception-customers' intention towards using of QR codes in mobile payment of Generation Y and Generation Z', *Electronic Commerce Research and Applications*, Vol. 65, p.101389.
- Alamoudi, H. (2022) 'Examining retailing sustainability in the QR code-enabled mobile payments context during the COVID-19 pandemic', *International Journal of Customer Relationship Marketing and Management (IJCRMM)*, Vol. 13, No. 1, pp.1–22.
- Al-Bashayreh, M., Almajali, D., Altamimi, A., Masa' Deh, R. and Al-Okaily, M. (2022) 'An empirical investigation of reasons influencing student acceptance and rejection of mobile learning apps usage', *Sustainability*, Vol. 14, No. 7, p.4325.
- Alexander, B. and Kent, A. (2022) 'Change in technology-enabled omnichannel customer experiences in-store', *Journal of Retailing and Consumer Services*, Vol. 65, p.102338.
- Ali, I. and Warraich, N.F. (2024) 'Use and acceptance of technology with academic and digital libraries context: a meta-analysis of UTAUT model and future direction', *Journal of Librarianship and Information Science*, Vol. 56, No. 4, pp.965–977.
- AlNajdi, S.M. (2022) 'The effectiveness of using augmented reality (AR) to enhance student performance: using quick response (QR) codes in student textbooks in the Saudi education system', *Educational Technology Research and Development*, Vol. 70, No. 3, pp.1105–1124.
- Alsyouf, A., Lutfi, A., Alsubahi, N., Alhazmi, F.N., Al-Mugheed, K., Anshasi, R.J., Alharbi, N.I. and Albugami, M. (2023) 'The use of a technology acceptance model (TAM) to predict patients' usage of a personal health record system: the role of security, privacy, and usability', *International Journal of Environmental Research and Public Health*, Vol. 20, No. 2, p.1347.
- Arghashi, V. and Yuksel, C.A. (2022) 'Interactivity, inspiration, and perceived usefulness! how retailers' AR-apps improve consumer engagement through flow', *Journal of Retailing and Consumer Services*, Vol. 64, 102756.
- Ashrafi, D.M. and Easmin, R. (2023) 'The role of innovation resistance and technology readiness in the adoption of QR code payments among digital natives: a serial moderated mediation model', *International Journal of Business Science and Applied Management*, Vol. 18, No. 1, pp.18–45.
- Azizah, S. and Bintoro, B.P.K. (2023) 'Determining factors of continuance intention to use QR code mobile payment among urban millennials in Indonesia: empirical study on DANA mobile payment', *Jurnal Scientia*, Vol. 12, No. 04, pp.761–766.
- Azizah, S., Bintoro, B.P.K. and Octavyra, R.D. (2022) 'Determining factors of continuance intention to use qr code mobile payment on urban millennials in Indonesia empirical study on mobile payment funds', *ADI Journal on Recent Innovation*, Vol. 3, No. 2, pp.121–138.
- Bakhitah, A., Indra, R., Halim, W., Ferbian, V. and Hidayat, Z. (2023) 'QRIS as a drivers of product distribution flows in Indonesia: factors of consumer purchasing behavior in the use of fintech payments', *Journal of Distribution Science*, Vol. 21, No. 12, pp.59–69.
- Barve, M. (2022) 'Improving the retailing experience of the new age information-seeking consumers using QR code', *MET Management Review*, Vol. 9, No. 1, pp.42–48.

- Bashir, H. (2022) 'Leveraging technology to communicate sustainability-related product information: evidence from the field', *Journal of Cleaner Production*, Vol. 362, p.132508.
- Benoit-Dube, L., Jean, E.K., Aguilar, M.A., Zuniga, A-M., Bier, N., Couture, M., Lussier, M., Lajoie, X. and Belchior, P. (2023) 'What facilitates the acceptance of technology to promote social participation in later life? A systematic review', *Disability and Rehabilitation: Assistive Technology*, Vol. 18, No. 3, pp.274–284.
- Bhattacharya, S. and Singla, B. (2024) 'The role of QR code technology in revolutionizing banking', *Journal of Computers, Mechanical and Management*, Vol. 3, No. 3, pp.36–45.
- Bradford, H., McKernan, C., Elliott, C. and Dean, M. (2022) 'Consumer purchase intention towards a quick response (QR) code for antibiotic information: an exploratory study', *NPJ Science of Food*, Vol. 6, No. 1, p.23.
- Bylappa, B.K., Kamath, D.Y., Josephine, I.S., Shaikh, J., Kamath, A., Rioniz, P., Kulkarni, S., Varghese, K. and Xavier, D. (2022) 'Usability and feasibility assessment of a smartphone application (Suhriday) for heart failure self-care remote monitoring in an Indian tertiary health care setting: a pilot mixed-methods study', *BMJ Open*, Vol. 12, No. 8, p.e056962.
- Camilleri, M.A., Troise, C. and Kozak, M. (2023) 'Functionality and usability features of ubiquitous mobile technologies: the acceptance of interactive travel apps', *Journal of Hospitality and Tourism Technology*, Vol. 14, No. 2, pp.188–207.
- Canca, D. and Perdahçı, Z.N. (2023) 'User experience analysis of an original website designed with simplicity from the perspective of technology acceptance model', *Acta Infologica*, Vol. 7, No. 1, pp.95–106.
- Damodharan, V.S. (2022) 'Antecedents of QR code acceptance during covid-19: towards sustainability', *Transnational Marketing Journal*, Vol. 10, No. 1, pp.171–199.
- Daood, R.M., Oppong, E.O. and Wang, J. (2024a) 'Determinants of social media adoption among SMEs in Syria: analyzing depth of usage through the TOE framework', *Open Journal of Business and Management*, Vol. 12, No. 4, pp.2754–2786.
- Daood, R.M., Wang, J. and Oppong, E.O. (2024b) 'Assessing depth of social media presence on financial performance of SMEs: Evidence from Syrian SMEs. A panel fixed effect analysis', *American Journal of Industrial and Business Management*, Vol. 14, No. 5, pp.712–736.
- Djanir, U., Munizu, M., Tomadehe, S. and Bakri, A.A. (2024) 'Analysis of the influence of perceived usefulness factors and subjective norm on intention to use QR code of digital wallet users', *Jurnal Informasi dan Teknologi*, pp.240–244.
- El Archi, Y. and Benbba, B. (2023) 'The applications of technology acceptance models in tourism and hospitality research: a systematic literature review', *Journal of Environmental Management and Tourism*, Vol. 14, No. 2, pp.379–391, [https://doi.org/10.14505/jemt.v14.2\(66\).08](https://doi.org/10.14505/jemt.v14.2(66).08)
- Eren, B.A. (2022) 'QR code m-payment from a customer experience perspective', *Journal of Financial Services Marketing*, Vol. 1, pp.106–121.
- Frans, S., Dominica, M.R.T.D., Lucky, I.K., Lilik, S. and Eva, Y.U. (2024) 'Application of the user centered design method to evaluate the relationship between user experience, user interface and customer satisfaction on banking mobile application', *Jurnal Informasi Dan Teknologi*, Vol. 6, No. 1, pp.7–13.
- Gaudeul, A. and Krawczyk, M. (2023) *Using QR Codes to Access Food Information: A Behavioural Study with European Consumers*, Available at SSRN 4642522.
- Gross, M., Roberts, C., Stinson, K. and Wiltman, S. (2023) 'Improving medical device usability by reducing complexity using a novel predictive models-based user interface assessment tool', *Human Factors in Healthcare*, Vol. 3, p.100041.
- Haridas Atmaram Tekale (2024) 'A comprehensive study on QR codes', *International Journal of Advanced Research in Science, Communication and Technology*, pp.328–335, <https://doi.org/10.48175/ijarsct-18935>

- Kadhafi, D. and Surianto, M.A. (2022) 'Customer satisfaction on the use of QR codes for frozen shrimp products at P.T. Kelola Mina Laut based on the theory of stimulus organism response', *Indonesian Vocational Research Journal*, Vol. 1, No. 2, pp.93–99.
- Katebi, A., Homami, P. and Najmeddin, M. (2022) 'Acceptance model of precast concrete components in building construction based on technology acceptance model (TAM) and technology, organization, and environment (TOE) framework', *Journal of Building Engineering*, Vol. 45, p.103518.
- Khanafer, N., Oudot, S., Planckaert, C., Paquin, N., Mena, C., Mandel, N.T., Chapurlat, R., Lombard, C., Martin-Gaujard, G. and Juillard, L. (2022) 'Using ELEFIGHT® QR codes for quick access to information on influenza burden and prevention: a pilot study in lyon university hospital', *Vaccines*, Vol. 10, No. 10, p.1591.
- Korn, J. (2024) 'Co-evolution of technology and society', *International Journal of Markets and Business Systems*, Vol. 5, No. 1, pp.59–73.
- Lu, A., Deng, R., Huang, Y., Song, T., Shen, Y., Fan, Z. and Zhang, J. (2022) 'The roles of mobile app perceived usefulness and perceived ease of use in app-based Chinese and English learning flow and satisfaction', *Education and Information Technologies*, Vol. 27, No. 7, pp.10349–10370.
- Mao, Y., Peng, C., Liang, Y., Yuan, G., Ma, J. and Bonaiuto, M. (2022) 'The relationship between perceived residential environment quality (PREQ) and community identity: flow and social capital as mediators', *Social Indicators Research*, Vol. 163, No. 2, pp.771–797.
- Mazhar, A.F., Salleh, N.A.N., Usman, S.B., Dzia-Uddin, D.N. and Kamaruddin, W.N.B.W. (2024) 'Assessing the customer perception of quick response (QR) code application and their purchase intention in penang's casual dining restaurants, Malaysia', *Asian Journal of Research in Education and Social Sciences*, Vol. 6, No.S1, pp.30–43.
- Mustafa, B., Mohamed, S.S. and Hafez, N.M. (2025) 'The aesthetical impacts of quick response (QR) codes in apparel design to revitalize handicrafts', *International Design Journal*, Vol. 15, No. 1, pp.385–409.
- Na, S., Heo, S., Han, S., Shin, Y. and Roh, Y. (2022) 'Acceptance model of artificial intelligence (AI)-based technologies in construction firms: applying the technology acceptance model (TAM) in combination with the technology–Organisation–environment (TOE) framework', *Buildings*, Vol. 12, No. 2, p.90.
- Nwosu, A., Boardman, S., Husain, M.M. and Doraiswamy, P.M. (2022) 'Digital therapeutics for mental health: is attrition the achilles heel?', *Frontiers in Psychiatry*, Vol. 13, p.900615.
- Partarakis, N. and Zabulis, X. (2024) 'A review of immersive technologies, knowledge representation, and AI for human-centered digital experiences', *Electronics*, Vol. 13, No. 2, p.269.
- Pham, G.V. and Duff, B.R.L. (2022) 'Regretful pleasure: toward an understanding of flow cost in media use', *Plos One*, Vol. 17, No. 5, p.e0268194.
- Pratas, J. and Oliveira, Z. (2023) 'QR codes research in marketing: a bibliometric and content analysis', *Marketing and Smart Technologies: Proceedings of ICMarTech 2022, Volume 2*, Springer Nature Singapore, Singapore, pp.275–287.
- Pujol, M., Caroux, L. and Lemerrier, C. (2024) 'Flow state requires effortful attentional control but is experienced effortlessly by video game players', *Interacting with Computers*, Vol. 36, No. 6, pp.371–382.
- Raimondi, V. (2024) 'Fashion industry and sustainability: building circular economy and cooperation among stakeholders', *International Journal of Markets and Business Systems*, Vol. 5, No. 1, pp.1–25.
- Rizkitysha, T.L. and Hananto, A. (2022) 'Do knowledge, perceived usefulness of halal label and religiosity affect attitude and intention to buy halal-labeled detergent?', *Journal of Islamic Marketing*, Vol. 13, No. 3, pp.649–670.

- Rotsios, K., Konstantoglou, A., Folinas, D., Fotiadis, T., Hatzithomas, L. and Boutsouki, C. (2022) 'Evaluating the use of QR codes on food products', *Sustainability*, Vol. 14, No. 8, p.4437.
- Ruangkanjanases, A., Khan, A., Sivarak, O., Rahardja, U. and Chen, S-C. (2024) 'Modeling the consumers' flow experience in E-commerce: the integration of ECM and TAM with the antecedents of flow experience', *SAGE Open*, Vol. 14, No. 2, p.21582440241258596.
- Saut, M. and Bie, S. (2024) 'Impact of service expectation, experiential quality, and perceived value on hotel customer satisfaction', *Journal of Quality Assurance in Hospitality and Tourism*, Vol. 25, No. 4, pp.781–809.
- Sen, S. and Yildirim, I. (2022) 'A tutorial on how to conduct meta-analysis with IBM SPSS statistics', *Psych*, Vol. 4, No. 4, pp.640–667.
- Sinemus, K., Zielke, S. and Dobbelsstein, T. (2022) 'Shopping app features: their impact on customer satisfaction and loyalty', *The International Review of Retail, Distribution and Consumer Research*, Vol. 32, No. 4, pp.423–449.
- Soliman, S., Keles, J.Y. and Fottouh, N. (2023) 'Refugee entrepreneurship and institutional voids: the case of Syrian refugee entrepreneurs in Egypt', *Academy of Management Discoveries*, Vol. 9, No. 3, pp.363–382.
- Stiegemeier, D., Bringeland S., Kraus, J. and Baumann, M. (2022) 'Do I really need it? ': an explorative study of acceptance and usage of in-vehicle technology', *Transportation Research Part F: Traffic Psychology and Behaviour*, Vol. 84, pp.65–82.
- Tan, T.H., Wong, S.F., Nagaratnam, S., Mohd Aris, M.N. and Yong, W.K. (2023) 'From paper to pixels: an investigation of the feasibility and acceptability of QR code attendance-taking in A higher education setting', *Proceedings of the 15th International Conference on Education Technology and Computers*, Barcelona, Spain, pp.229–234.
- Tay, L-Y., Tai, H-T. and Tan, G-S. (2022) 'Digital financial inclusion: a gateway to sustainable development', *Heliyon*, Vol. 8, No. 6.
- Türker, C., Altay, B.C. and Okumuş, A. (2022) 'Understanding user acceptance of QR code mobile payment systems in Turkey: an extended TAM', *Technological Forecasting and Social Change*, Vol. 184, p.121968.
- Tuti, M. and Sulistia, V. (2022) 'The customer engagement effect on customer satisfaction and brand trust and its impact on brand loyalty', *Jurnal Manajemen Bisnis*, Vol. 13, No. 1, pp.1–15.
- Yamin, M.A.Y. and Abdalatif, O.A.A. (2024) 'Examining consumer behavior towards adoption of quick response code mobile payment systems: transforming mobile payment in the fintech industry', *Humanities and Social Sciences Communications*, Vol. 11, No. 1, pp.1–11.
- Yoo, S., Drumwright, M.E. and Piscarac, D. (2023) 'Augmented reality and nonprofit marketing during the COVID-19 pandemic: AR factors that influence community participation and willingness to contribute to causes', *Nonprofit Management and Leadership*, Vol. 34, No. 1, pp.81–106.
- Zhong, Y. and Moon, H-C. (2022) 'Investigating customer behavior of using contactless payment in China: a comparative study of facial recognition payment and mobile QR-code payment', *Sustainability*, Vol. 14, No. 12, p.7150.
- Žurbi, T. and Gregor-svetec, D. (2023) 'Use of qr code in dairy sector in Slovenia', *SAGE Open*, Vol. 13, No. 2, p.21582440231177028.

Appendix 1: The advertisement poster for the company (DiGiShi)



Appendix 2: Measurement items

<i>Construct</i>	<i>Statements</i>	<i>References</i>
Perceived of usefulness	• I find it quite easy to use the QR code. • The QR code helped me easily access the shopping site. • I find the QR code effective for online shopping. • The QR code improved my shopping productivity. • The QR code enhanced my shopping efficiency. • The QR code improved my ability to shop.	Rizkitysha and Hananto (2022)
Acceptance	• I find the QR code usable. • The cost of using the QR code is negligible. • Using the QR code suits me.	Katebi et al. (2022)

<i>Construct</i>	<i>Statements</i>	<i>References</i>
Feasibility	• The QR code makes it easier for me to access information quickly. • The QR code provides information for online shopping. • The QR code contains sufficient information	Katebi et al. (2022)
Perceived flow	• I felt fully engaged while using the QR code. • Time passed very quickly while using the QR code.	Ali and Alfaki (2021)
Customer Satisfaction	• I was delighted while using the QR code. • I have a positive attitude toward using the QR code. • My interaction with the QR code was highly satisfying.	Saut and Bie (2024)