

SPECIAL FOCUS PAPER

The Role of Smart-Phone Based Interactive Technology in Marketing

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ABSTRACT

The role of smartphone-based interactive technologies, like WhatsApp, in marketing has gained increasing attention because businesses seek more personalised and direct communication channels with consumers. WhatsApp is a widely used messaging application that positively contributes to digital marketing strategies and influences consumer behaviour. The research aims to study the types of interactive technologies used in mobile marketing, particularly WhatsApp, and their impact on consumer behaviour. The analysis includes the theoretical frameworks of WhatsApp marketing as a modern digital approach that provides different advantages in promoting products and services across different sectors. Additionally, the features, tools, and strategies linked with WhatsApp marketing are presented in an explanatory manner and described thoroughly, along with the advantages and disadvantages of its use. Further explanation is provided on consumer behaviour, particularly examining the way WhatsApp marketing drives the purchasing process and decision-making of consumers. The study investigates various marketing practices using WhatsApp, including customer engagement, relationship building, real-time support, and targeted promotional campaigns. The systematic review synthesises existing literature to identify the advantages of WhatsApp marketing, like the high engagement rates, cost-effectiveness, and enhanced customer trust, along with challenges including privacy concerns and message fatigue. A discussion follows on the key points that marketers and business managers consider while integrating WhatsApp into their digital marketing strategies by focusing on its value in enhancing customer engagement, loyalty, and brand interaction.

KEYWORDS

mobile technology, interactive technology, WhatsApp marketing, digital marketing

1 INTRODUCTION

Smartphone-based interactive technologies highly drive modern marketing, as they enable real-time engagement with the audience. Companies can directly reach customers and create a strong relationship with them that is linked to improved

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marketing ROI. Bozorgkhou and Alimohammadirokni [1] have mentioned that the widespread usage of mobile phone devices allows instant communication that enables businesses to update customers by providing them with messages, promotions, and information. It makes personalised communication using data analytics that helps in tailoring marketing messages. As per the study by Manko [2], smartphone-based technologies also offer customers messages based on their preferences, which leads to a higher engagement and customer conversation rate.

Using such technologies helps global companies to utilise target marketing, like location-based marketing using interactive features. Sennuga et al. [3] have explained that smartphone-based interactive marketing sends push notifications to customers of a specific segment based on their behaviours, interests, or locations. Moreover, it benefits businesses by providing data-driven insights regarding consumer behaviour, engagement, and preferences so that businesses can refine their strategies and optimise marketing campaigns. Besides, Guo and Wang [4] have also pointed out that using smartphone-based interactions with customers enhances brand awareness as it reaches a wider audience and increases brand visibility. Consequently, brands can interact with consumers more effectively using data-driven decisions for a better outcome.

The impact of smartphone-based interaction in marketing is crucial for improving customer service. For instance, Hu et al. [5] have suggested that modern technologies include chatbots and mobile apps that assist in offering instant support for customers. It enhances customer satisfaction and brand loyalty so that customers can be engaged with the brand for a long-time using marketing tactics. Furthermore, mobile marketing has become cost-effective and allows businesses to expand to a larger audience with comparatively low investment. On another note, Biswas et al. [6] have mentioned that mobile marketing can integrate special features like push notifications and GPS that enable companies to create highly contextual marketing. Thus, the promotional efforts of the brands can be significantly improved and used effectively.

Mobile marketing has launched loyalty programmes as the usage of mobile devices is constantly increasing. For example, Briez et al. [7] have highlighted that mobile apps can host loyalty programmes that allow customers to earn easy rewards and use them during their purchase for better customer engagement. Such features also allow brands to obtain valuable insights to understand customer preferences and behaviour facilitated through a powerful data collection method. Mobile marketing is regarded as a powerful tool for creating an interactive experience as it uses technologies and features like augmented reality (AR) and virtual reality (VR) to improve user experience. Hence, companies can come up with more interactive marketing campaign ideas that reflect user engagement.

SMS marketing is a prime example of smartphone-based marketing that ensures immediate visibility by sending messages directly to consumers. Push notifications are another potential mobile marketing tool that helps inform customers about new products, exclusive deals, and other updates. Yilmaz and Tekeli [8] have said that WhatsApp has become a crucial tool for mobile marketing and the use of interactive technologies. WhatsApp marketing is user-friendly, as it is one of the top messaging applications globally used. Thus, marketers have integrated WhatsApp into their marketing strategies to drive customer engagement, brand interaction, and brand loyalty.

2 MATERIALS AND METHODS

A systematic review method has been applied in this research that encompasses the stages of planning, conducting the review, and data analysis for meaningful

findings and discussion. For the first stage of planning, the study has identified authentic databases to collect scientific sources relevant to the current research. The collected sources have been checked for their accuracy in providing information regarding smartphone marketing and relevant activities. A few research questions can be mentioned to understand the type of information to be expected from this research in Table 1.

Table 1. Research questions for literary search

ID	Research Questions	Relevance
RQ1	What are the benefits of using smartphone-based interactive technologies in the marketing of a business?	To identify the advantages of using smartphone-based interactions in marketing, obtain data on customer expectations, preferences, customer service, cost-effectiveness, and enhance brand awareness
RQ2	What are the key factors that affect smartphone-based marketing technologies and their outcome?	To understand the elements that have a potential impact on the success of smartphone-based interactive marketing, and use them to their full potential
RQ3	What are the potential risks that global companies might encounter while using smartphone-based interactive technologies in marketing strategies?	To identify the challenges and limitations of using smartphone-based marketing techniques and how they can be overcome using accurate digital tools and techniques

Specific keywords have been used in the second stage of the study to collect only relevant and authentic sources for the data analysis process. Keywords like “smartphone-based interactions”, “WhatsApp marketing”, “brand awareness”, and “real-time engagement” have been used during the data collection process. Besides, only reliable databases like ResearchGate, ScienceDirect, SpringerLink, Wiley, Elsevier, and the respective ones have been accessed to collect peer-reviewed existing journals and articles. Further refinement in the research and data collection has been brought about by using Boolean search operations with the operators AND, OR, and NOT to narrow down the search results. Combinations of keywords like “mobile apps”, “marketing strategies”, “personalized communication”, and the like have been used for a potential outcome. Further, criteria have been used to maintain data quality by obtaining only authentic information for research purposes.

The collected journals and articles are mandatory to be published between 2019 and 2024 to maintain the currency of the information. The combination of words that have been used for the data search process is shown in Table 2.

Table 2. Literature search strings

Questions	Search Strings
RQ1	((SMARTPHONE-BASED INTERACTIONS AND MARKETING TECHNIQUES) AND CUSTOMER ENGAGEMENT) AND BEHAVIOR)
RQ2	((SMARTPHONE USAGE AND MARKETING ELEMENTS) OR CUSTOMER PREFERENCES) AND INTERACTION)
RQ3	((SMARTPHONE-BASED INTERACTIVE TECHNOLOGIES AND TARGET MARKETING) AND DATA-DRIVEN INSIGHTS) AND BRAND LOYALTY)

Inclusion and exclusion strategy: As per the instructions of the scoping review, several inclusion and exclusion criteria have been decided for existing literary work selections.

Types of participants: No specific criteria for participants in the existing studies have been set that can potentially block the research scope. The focus has remained on the primary topic that has been selected to conduct the review in the selected sources for a detailed description of the research phenomenon.

Concept: Various research, including qualitative, quantitative, meta-analysis, conferences, and reviews, have been included for maximum information accuracy. However, personal opinions and perspectives on smartphone-based marketing interactions have increased the chances of developing biased data.

Context: The included studies have been selected irrespective of the geographic areas and the methods selected for their execution. Generalised findings have been presented on the influence of smartphone-based technologies on interacting with customers as a marketing strategy.

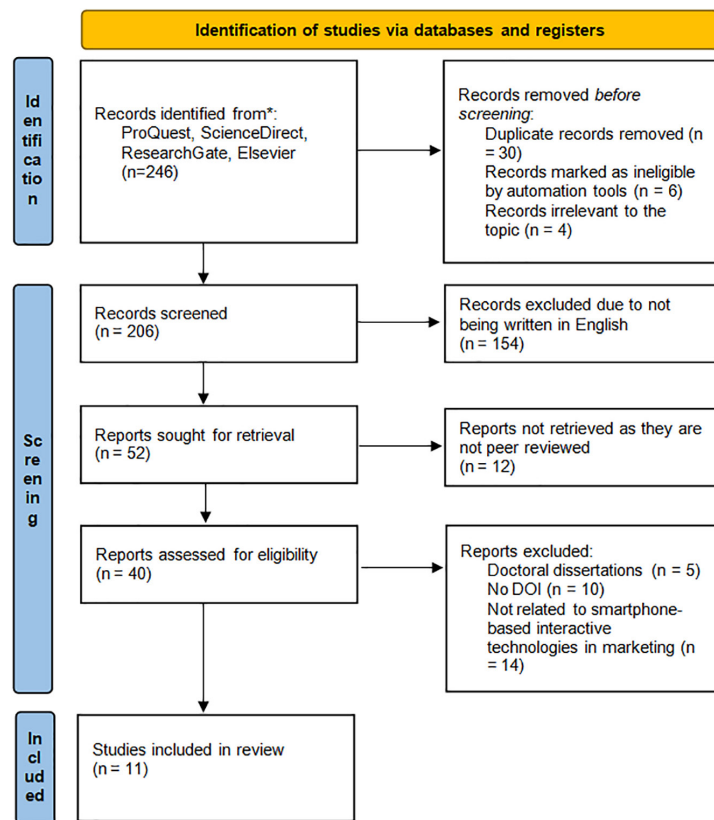


Fig. 1. PRISMA diagram

The PRISMA flowchart has been incorporated into this research to show that a total of 11 journals and articles have been selected (see Figure 1). It has worked as a screening process that has removed certain records due to different criteria, and the chosen articles are the results of a final review of all the papers. For instance, 12 articles have been removed as they were not peer-reviewed, and further search results have been excluded as they lacked a DOI and relevant information.

3 RESULTS

The overview of the chosen 11 articles has been mentioned by briefing their research designs or methods, participants involved, relationship, and probable results (refer to Table 3).

Table 3. Summary of results

Serial Number of References	Authors and Publication Date	Research Design	Participants and Country	Relationship	Summary
[9]	Smolić et al. (2024)	Case study analysis	NA	Smartphone-based interaction is a web technology-based approach	Technology is important in having a smartphone-enabled interaction
[10]	Khan et al. (2023)	Literature review	NA	Relationship between customer engagement and experience	Mobile apps can be used in marketing for customer engagement
[11]	Bilro and Loureiro (2020)	Systematic review	41 research papers	Customer engagement and marketing agenda	Customer behaviour can be determined by analyzing media engagement
[12]	Uwaoma et al. (2023)	Literature review	USA	Immersive shopping experience and customer engagement	The transformation of the retail sector through MR technologies
[13]	Hunt et al. (2021)	Literature review	NA	Smartphone-based technologies and imaging systems	Smartphone-based technologies can improve marketing tactics
[14]	Wolniak and Grebski (2023)	Systematic review	Smart cities	Smartphone application and community engagement	Smartphone applications can be limited in technological usage and expertise
[15]	Mustapha et al. (2024)	Observation and semi-structured interviews	4 project managers, community health workers, informants, and DSNOs of Nigeria	Smartphone-based interaction and surveillance system in marketing	
[16]	Mustafa et al. (2023)	Mixed method	Interview with small business owners and quantitative analysis of marketing outcome	Direct messaging features and customer engagement	WhatsApp API increases consumer interaction and engagement
[17]	Sharmin et al. (2021)	Survey	365	Marketing ecosystem and smartphone-based media	Consumers increasingly accept interaction with companies through smartphones.
[18]	Wenz and Keusch (2023)		1,877 members of the NORC AmeriSpeak Panel in the USA	Smartphone-based data collection and customer response	Smartphone-based data collection increases customer willingness to engage with brands
[19]	Muhammad et al. (2023)	Extensive literature survey	19 survey articles	Smartphone security and marketing strategies	Smartphone security and privacy are important for a desired outcome in mobile marketing.

A critical review of the collected evidence shows that using effective keywords can be beneficial in collecting relevant information accurately. The current study has gathered data from existing sources in a way that can connect smartphone-based interactive technologies with customer engagement, as it is the primary aim of a marketing strategy. Besides, keywords like “smartphone-based interactive technology”, “customer experience”, “marketing strategies”, and “WhatsApp marketing” are the main sources of obtaining only authentic sources to be applied in this study’s data analysis section. However, using all the relevant keywords could result in a huge dataset, which increases the chances of data misinterpretation. Hence, the study can be driven in more directions to obtain various perspectives.

4 DISCUSSION

Theme 1 Related to RQ1. Benefits of customer engagement through smartphone-based interactive technologies. The usage of smartphone-based interaction technologies is rapidly increasing as it benefits in terms of customer satisfaction and improved brand loyalty. Research by Khan et al. [10] has shown that using interactive technologies provides personalised experiences for customers to attract and retain their attention to a brand for a long time. Brands can initiate real-time communication by acquiring data-driven insights using these messaging apps, like WhatsApp. Moreover, a positive customer interaction leads to an increased customer conversion rate and boosted sales for companies. Contrarily, Smolić et al. [9] have highlighted this by arguing that personalised messages need to be properly segmented to obtain the maximum benefits. Henceforth, more timely and relevant messaging can be done for the customers based on their preferences, WhatsApp usage, and interests.

Customer satisfaction can be potentially increased by companies using smartphone-based technologies in marketing. The study of Khan et al. [10] has provided the opinion regarding real-time communication with customers using chatbots in various mobile engagement platforms like WhatsApp. Additionally, in-app messaging can be regarded as a quicker and more effective method of customer service that consumers also respond to faster. It is the major benefit of leveraging WhatsApp that its usage is more prompt and quick in comparison to other mobile messaging apps. On the other hand, Smolić et al. [9] have discussed that AI-powered systems are more likely to be effective in the context of marketers using smartphone-based interaction technologies. Thus, personalised services like product recommendations based on previous purchasing history can increase customer engagement.

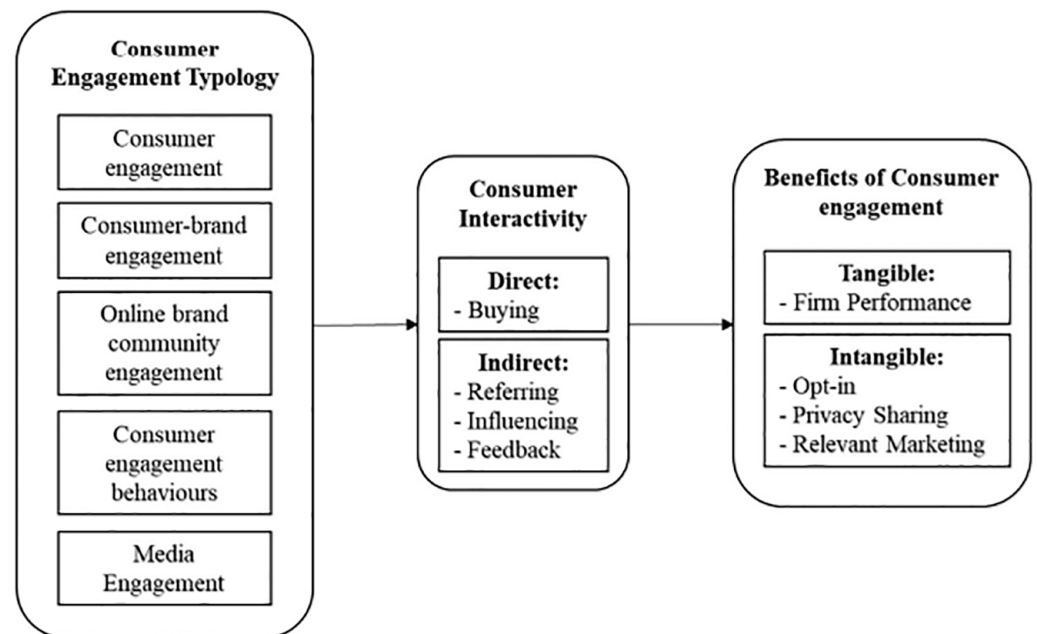


Fig. 2. Relation between consumer engagement and interactivity

Scholars have shared that the relationship between customer engagement and interaction is crucial (see Figure 2). For example, Bilro and Loureiro [11] have highlighted that customers can engage with a brand through online communities

or media. WhatsApp can be seen as a medium that brands currently leverage to promote products by personalised and exclusive offers through direct messaging. It can generate both direct and indirect interaction, like consumers can open e-commerce links directly from WhatsApp for purchasing, or they can refer products to others, be influenced to make a later purchase, or leave feedback.

The utilisation of such marketing strategies comes with the advantages of increased customer loyalty and retention. Uwaoma et al. [12] have projected that timely communication and personalised experiences for customers create a strong relationship with brands. It reduces churn, as customers tend to engage more with brands that consider their emotions behind attaching to the brand or their preferences. It leads to stronger customer loyalty, as the mobile-first approach has become a trend. Many global companies and marketers are using this technique to offer rewards, exclusive deals, and customised experiences to increase the chances of repeat purchases using WhatsApp. Bilro and Loureiro [11] have also pointed out that social features can be used in interactive marketing strategies so that customers can share their experiences and provide their valuable feedback. For instance, WhatsApp can also help in creating consumer communities that offer them a sense of belonging to increase the chances of sticking to the brand.

Smartphone-based interactive marketing is likely to improve the quality of consumer data collection for international brands. Detailed user segmentation can be done using mobile engagement platforms that offer valuable insights into consumer behaviour so that businesses can make informed decisions. For instance, the study by Khan et al. [10] has depicted that companies can develop products or design marketing campaigns based on real-time analytics in WhatsApp. It also improves customer targeting with data-driven decisions and better marketing approaches, leveraging marketing offers and messages. However, Bilro and Loureiro [11] have shared that mobile devices are personally used where the brand messages need to be attractive to engage customers. Therefore, interactive technologies come in handy as they help in automating messages to improve services and enhance human interaction with the brands.

Theme 2 Related to RQ2. Technology plays an integral role in shaping the outcome of smartphone-based interactive technologies. The success of using smartphone-based interactions in marketing is primarily dependent on technologies. Hunt et al. [13] have shared that AI is a widely known technological solution that is being aggressively used in marketing strategies to increase customer engagement. It helps in offering customers personalised experiences and companies with predictive analytics. Moreover, AI can be utilised in marketing to optimise advertising so that the attention of potential customers can be acquired. On another note, Wolniak and Grebski [14] have expressed that AR and VR have become promising technologies in marketing to offer a real-time experience to customers. As a result, such technologies are transforming how companies interact with consumers using innovative marketing techniques.

A detailed analysis of Mustapha et al. [15] has suggested that mobile technology is crucial in modern marketing as it enables powerful collaboration and communication. WhatsApp marketing is trying to reshape communication between brands and target consumers by allowing interactive content. Companies are also making data-driven decisions provided by technological aids that strengthen further marketing strategies. For instance, WhatsApp marketing is effective for customer experience, as it can provide them with an immersive experience that boosts engagement and drives a company's sales. In contrast, Hunt et al. [13] have argued by stating that technological usage assists in interpreting vast amounts of public data that can be

challenging to analyse manually. Thus, technological solutions help marketers collect and analyse customer data to further improve interactions with customers.

Technological usage in marketing is currently targeting mobile device interaction due to its wide usage and easy accessibility. For instance, the study by Wolniak and Grebski [14] expresses that online shopping and transactions have become popular on WhatsApp, as mobile marketing can drive a positive response in customer engagement. Technology is moving marketing tactics beyond the traditional methods as global consumers are likely to spend more time on their mobile devices. Furthermore, technologies like AI, AR, and VR are emerging trends in technology that support innovation in WhatsApp marketing. It has been opposed by another study of Mustapha et al. [15], which states that smartphone-based marketing is gaining popularity due to its immense contribution to location-based marketing. Companies are using geolocation data through AI to initiate highly localised campaigns that not only increase foot traffic but also improve customer retention.

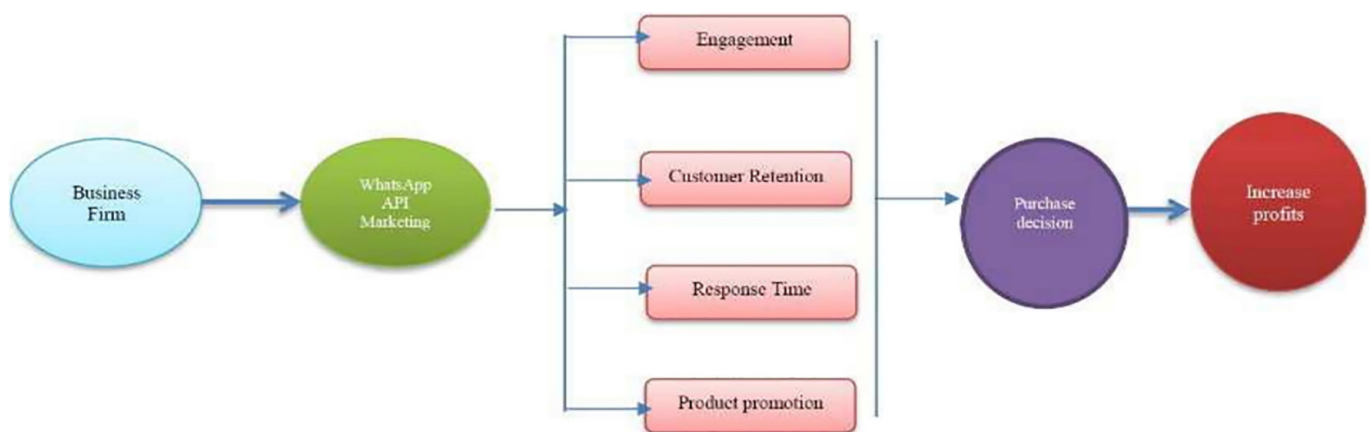


Fig. 3. Benefits of WhatsApp API marketing

WhatsApp API marketing is advantageous as it allows businesses to make regular communication with existing and potential new customers (see Figure 3). Mustafa et al. [16] have explained that WhatsApp marketing depends on customer engagement, response time, and product promotions, where customer retention is vital. It leads to the ultimate decisions of customers regarding their purchasing and generates more sales for companies. Hence, WhatsApp marketing is effectively used to understand customer behaviour to decide further engagement strategies by marketers.

According to the study by Mustapha et al. [15], WhatsApp marketing is becoming well-known, as it is a form of marketing where companies are interacting with consumers where they spend a significant time. It has the potential to attract customers, boost brand awareness, increase the chance of conversion, and sales. The role of technology in WhatsApp marketing is crucial as it allows for capturing data based on the locations of customers. Companies can initiate specific marketing campaigns so that they can be made more relevant and a positive interaction can be made with customers. However, the study by Mustafa et al. [16] has shown that companies need to use an effective type of smartphone-based marketing based on the user's activities. Henceforth, companies will be able to connect with only potential and loyal customers by building custom mobile apps.

Theme 3 Related to RQ3. Companies can face data privacy and security concerns while implementing smartphone-based interactive technologies. Smartphone-based interactive technologies can be used by global companies,

providing exciting opportunities in terms of marketing strategies. Sharmin et al. [17] have stated that the global regulatory landscape is constantly changing, and companies need to navigate complex data privacy regulations. For instance, the characteristics of the GDPR in Europe, the evolving framework of India, and the CCPA of California differ. Companies can face the issues of fines for non-compliance, along with legal repercussions that are damaging to the reputation of the companies as well. However, a study by Wenz and Keusch [18] has shared that marketing using modern technologies and apps like WhatsApp often involves storing or transferring cross-border data that adds layers of complexity in international businesses. As a result, it increases vulnerabilities to data breaches as it leverages the personal data of customers, leading to an increased chance of data breaches and cyber-attacks.

User consent and transparency are potential issues that global business firms might face while using interactive technologies in WhatsApp communication for marketing purposes. The findings of Muhammad et al. [19] suggest that data-driven decisions are often made by collecting and managing public data without their consent. Hence, such data are essential to be used in a compliant manner, as they involve different legal contexts and diverse cultural factors. Besides, concerns for data privacy are also significantly increasing among global consumers, which adds more responsibilities to the companies. Therefore, the rising challenges of data privacy pose a threat to data privacy and security risks.

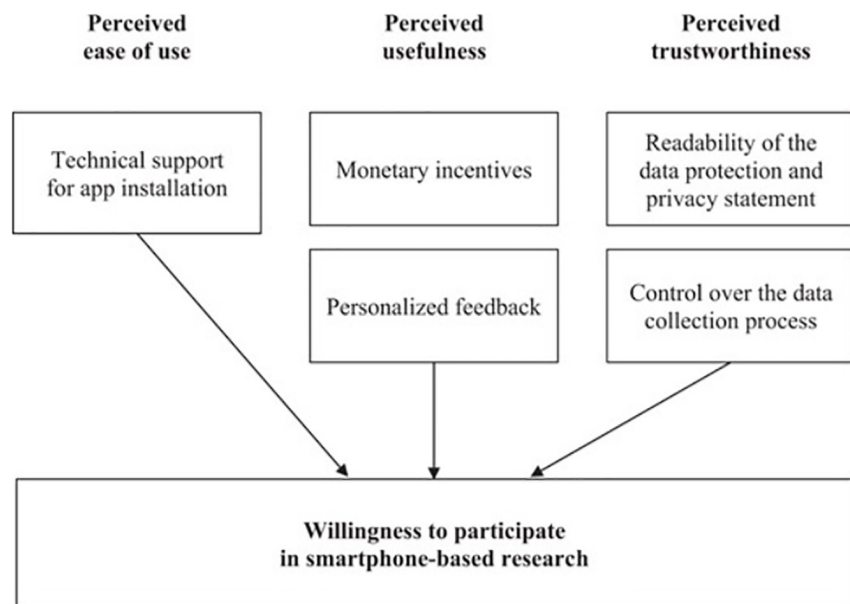


Fig. 4. Relation between technology acceptance model (TAM) and customer interaction

According to the findings of Muhammad et al. [19], the impact of TAM can be regarded to be important for understanding the trustworthiness of applying mobile marketing (see Figure 4). In this context, it can be mentioned that people need to have their willingness to participate in smartphone-based research to share their experiences. For instance, they can share their opinions as personalised feedback or monetary incentives that they have received to showcase the usefulness of mobile marketing. Besides, data protection and privacy have been mentioned as crucial components in smartphone-based interaction with customers, like through WhatsApp. Wenz and Keusch [18] have stated that WhatsApp marketing comes with a privacy statement for public data protection. According to TAM, “perceived ease

of use” can be understood with the technological support obtained from app installation. Thus, companies collect data, yet control data privacy and security systems regarding WhatsApp marketing.

The chances of data theft and privacy issues in using interactive technologies mainly arise, as this process involves collecting a wide range of data regarding personal information, browsing history, location, and mobile usage patterns. Sharmin et al. [17] have an overview that providing personalised experiences for users are the aim of interactive marketing using smartphones. Hence, such a vast amount of public data is collected for targeted advertising from WhatsApp based on public opinions and their preferences. Besides, global companies often face security threats like malware and phishing attacks that compromise public data from WhatsApp. In this context, the study by Wenz and Keusch [18] has argued that unauthorised access to data and data leaks can be challenging for the privacy of customers as well as the reputational damage to the companies. Thus, appropriate legal and regulatory frameworks are essential to be adhered to avoid the consequences of data breaches.

Using mobile app space for marketing is risky for companies, as it is challenging to build trust with customers in this space. Wenz and Keusch [18] have expressed that user trust can be eroded without transparency and security in mobile interaction technology usage through WhatsApp. Besides, a lack of security in such interactions by companies often results in negative brand promotion and lower adoption rates of marketing strategies. Similarly, the complications of regulatory frameworks change in various countries, like the data privacy regulations of GDPR in the EU, have become more complex, causing issues for companies using modern technologies. In contrast, Muhammad et al. [19] have contradicted this by stating that companies can use user-friendly security measures to protect public data on personal mobile devices. For instance, strong passwords, using certain effective antivirus software, and setting up protocols can be followed by users in WhatsApp as per the instructions of companies to avoid threats of data breaches.

5 RESEARCH GAPS

Unlike other effective research papers, the current research also lacks in incorporating certain points due to the small span of the study. Pointing them out can be helpful for future studies to acknowledge them and consider exploring such vital areas. The following can be considered as the gaps in the current study:

1. A lack of focus on a particular industry to understand the marketing strategies
2. Insufficient information on the mostly used smartphone-based interactive technologies that marketers use
3. A lack of data on how companies implement smartphone-based interactive marketing techniques
4. Only focusing on WhatsApp marketing can be expanded by discussing other forms of mobile marketing.
5. Under-representation of technological advancement in mobile marketing
6. A lack of statistical information on how effective smartphone-based interactive technologies are in marketing
7. A lack of consideration or comparative analysis with alternative marketing strategies to understand its effectiveness

6 CONCLUSION

The study has critically demonstrated the trends of smartphone-based interactive technologies that are being used by international companies for marketing purposes. Despite the meaningful findings and discussions on the benefits of such marketing, further assessment is required on the mentioned research gaps. Moreover, a systematic review has been conducted, which resulted in a skilful representation of the factors, like technological aspects, that are crucial for the success of using mobile devices as a means of customer interaction by companies. Previous literature on smartphone-based interaction with customers as a marketing strategy has provided the idea that it is beneficial, as consumers of recent times spend a significant time on their mobile devices, which increases brand visibility while this marketing strategy is used.

Considering the findings presented by this research, further research can develop knowledge on a particular industry and how the industry uses interactive technologies to connect with its target audience through mobile devices. The pros and cons of using this marketing technique can then be understood in a better way by conducting future studies using other research methods. Further knowledge on an effective implementation process of these marketing tactics can also be found by following such methods. Hence, a desired outcome of the research can be attained by executing future studies by focusing on different areas of smartphone-based marketing techniques.

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