

## UTILIZATION OF MOBILE TECHNOLOGY AS MARKETING TOOLS IN THE DIGITAL ERA: APPLICATION & CHALLENGES

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### Abstract

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*Human life and civilization in the 21st century have increasingly developed based on information technology. The 21st century is a century of openness or globalization; this means that human life today has undergone fundamental changes that have differed from the previous century's life system. These changes cover all aspects of life, including using mobile technology as a marketing tool. The 21st century is a digital era, where the use of digital devices, including mobile technology, is rare and difficult for today's society. This research conducts analysis using a literature review of the extent to which the utilization of mobile technology as a marketing tool is used in terms of application & challenges. This research has reviewed 44 journals from 24 countries in the sectors/industries of Agriculture, Food and drink, Education and services, Retail Business, Tours and travel, Trading Companies, and Others. The results show that mobile application companies, websites, social media, e-mail marketing, and e-commerce have utilized mobile technology as a marketing tool. However, its implementation has several obstacles and challenges; this utilization has had a positive impact and business improvement for the company's business growth.*

### INTRODUCTION

Along with technological advances in this digital era, almost all aspects of human life cannot be separated from the application of digital technology, which facilitates activities and increases productivity in various sectors. Humans have faced all changes and lived their lives in every development of the industrial world, which is currently called the Industrial Revolution 4.0. The industrial era that led to the digital era caused a decrease in the involvement of human labor, thus demanding that every resource in a country be ready for technological development. The digital era is a phase where most of the activities of human life to meet daily needs are supported by digital systems (Tartila & Asmuni, 2022). That phase is called digital transformation, which leads to using technology as an effective and efficient job handler. In various contexts, especially in the business context, digital transformation is considered a driver of change, and the utilization of technology and digitalization can affect all aspects of human life (Tulungen et al., 2022).

In the use of technology, there is a type of technology that provides services and functions as a means of communication called cellular technology. Cellular technology is a technology that always accompanies human activities, especially in communication and information. The development of cellular technology itself has changed. It has significant differences from generation to generation, which lie in four main aspects: radio access, *bandwidth*, data speed, and *switching* schemes. The difference is in the previous generation, namely the generation of technology 1G (Advanced Mobile Phone System), 2G (Global System for Cellular Communication), 2.5G (Improvement of 2G technology), 3G (Dual Access Code-Division), and 4G. Now, cellular technology has evolved from 4G technology to a new technology called 5G technology. However, 5G technology services are still in the early development stage; 5G cannot shift the 4G technology that the community has used because it is still needed to be the basis for the operationalization of 5G technology. Based on the significant development of cellular

technology, the application of cellular technology is very beneficial for human survival, as seen from the service of the technology. Mobile technology is applied to various activities such as business activities, education, and entertainment (Usman, 2017) (Wisnubroto, 2021).

Mobile technology services have provided performance as a form of digitalization in various sectors, including business activities. Running and developing a business is close to the vital role of marketing. Marketing is an activity that relates and conveys something to consumers. Along with the sustainability of this form of digitalization, nowadays, marketing activities utilize technology as a way of digital marketing, intending to expand and improve the process of traditional marketing. So, in the future, digital marketing will continue to be used and developed as long as it is profitable and effective to convey messages and communicate with consumers (Kusuma & Sugandi, 2019).

From technological advances in marketing activities, especially the critical role of mobile technology, it is possible to realize real-time interaction with consumers, convey messages directly, and communicate interactively between consumers and business people. In realizing this, digital media is referred to as *marketing tools* that act as tools and means to help market products, services, and *the company's* brand image. Digital media introduces products and services companies offer through digital catalogs using *marketing tools*, including the Internet, *smartphones*, and social media. Companies must be able to run marketing tools to achieve the success of this industry. The use of (Widijaya et al., 2021) *Marketing tools* in terms of the company's work process efficiently impacts performance to reach more consumers (Labanauskaite et al., 2020).

As business people, they must be sensitive to changes, developments, and challenges that impact the progress of their business, so they must respond appropriately, especially in consumer behavior in this digital era. Consumer behavior is a purchase decision related to consumer emotions. Due to the development of increasingly advanced technology and the existence of (Trenggana, 2022) *mobile technology*, it can change

consumer behavior based on consumer motivation. Consumers not only use *mobile technology* to find information but also to meet their daily needs online. Based on open technological advances, consumers are increasingly active and critical in choosing products and services that match their level of satisfaction. Technological advances have also made it easier for consumers to access products and services quickly. In addition, consumer expectations of products and services are getting higher; this explains that the shift in consumer generation that increasingly dominates this market is due to the rise of *marketplaces* as online shopping places that affect consumer behavior. It can influence and shape consumer behavior in purchasing decisions due to changes in the socio-cultural environment that lead to digitalization.

As a company that wants to maintain and attract consumer interest, the thing that must be done is to increase its credibility, trust, and quality. Even if the company ignores this aspect, it will have an impact and affect consumer loyalty. Therefore, companies must pay attention to the potential risks that will occur when dealing with consumers. Based on the background of societal problems, business people must solve these problems by providing products and services that consumers want and need, especially in this digital era. So, at this time, the company must plan an efficient strategy to benefit the company and consumers (Febriani & Goddess, 2019).

In addition, companies must improve digital services to meet consumer needs. Through digital means, companies must process content creatively and communicate with consumers consistently. Sustainable conditions in the business environment require the company to adapt and have the correct response to survive. So, it takes work to evolve and learn about change management opportunities in the digital age for companies. Therefore, this article aims to know the application aspects and challenges of utilizing mobile technology as a marketing tool in the digital era from various existing research and literature. The hope is to know the differences and similarities of the applications and challenges of various sectors of companies in utilizing mobile technology for marketing tools (Rizal et al., 2023).

**METHODS**

The research method used in writing this journal, namely literature study, means collecting relevant materials and information for study, reading, recording, or utilization (Yusuf Abdhul, 2023). The collection of materials and information can be taken through various sources, such as books, notes, reports, and literature, that are indeed related to the problems raised by researchers (Yusuf Abdhul, 2023). The process of literature study is divided into several stages as follows:

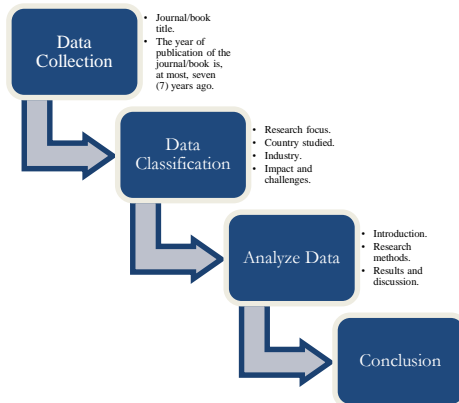


Figure 1. Stages of literature study

a. Data Collection

At this stage, researchers search for data from various journals and books related to the title of the study, namely *Utilization of Mobile Technology as a Marketing Tool in the Digital Era: Application and Challenges*. The researchers agreed to look for journals up to seven years back (year limit: 2016).

b. Data Classification

The researchers classified the data obtained from journals/books into several sections, namely the focus of the study, the country studied, the industry, and the impacts and challenges.

c. Data Analysis

This stage requires researchers to describe the data that has been obtained from the previous two stages, namely the collection and classification of data that will be associated with the research title.

d. Conclusion

After the data is analyzed, the researchers make conclusions or conclusions based on the descriptions contained in the data analysis stage.

In conducting this study, the researchers took references from 43 journals and one book from 24 countries, namely Turkey, Korea, Britain, India, Russia, Iraq, Indonesia, Ukraine, Italy, Kuwait, Finland, Spain, Kazakhstan, Bulgaria, Nigeria, Poland, Czech, Australia, Malaysia, Arabia, South Africa, Jordan, the United States, and Portugal. The classification of journals and books taken as references is divided into several parts, which are as follows.

Table 1. Classification of journals and books

Classification	Description
<b>Research Focus</b>	<i>Internal Business Improvement</i>
	<i>B2B Improvement</i>
	<i>B2C Improvement</i>
	<i>Customer Behaviour</i>
	<i>Marketing Tool</i>
	<i>Agriculture</i>
	<i>Tours &amp; Travel</i>
	<i>Retail Business</i>
	<i>Trading Company</i>
	<i>Government</i>
<b>Industry</b>	<i>Education &amp; Services</i>
	<i>Agriculture, Food, and Drink</i>
	<i>Others</i>
	<i>1. No impact and few challenges</i>
	<i>2. Little impact and few challenges</i>
<b>Impact &amp; Challenges</b>	<i>3. There are impacts and few challenges</i>
	<i>4. Many impacts and few challenges</i>
	<i>5. Many impacts and many challenges</i>

**RESULTS AND DISCUSSION**

The research conducted based on 44 previous studies is related to the use of mobile technology as a marketing tool in the digital era, where the focus of the research discussion focuses on B2B improvement, B2C improvement, internal business improvement, customer behavior, and the use of mobile technology as one of the marketing tools.

The source of this research comes from 24 countries in several industries/sectors with distribution as Figure 2, Figure 3, & Figure 4.

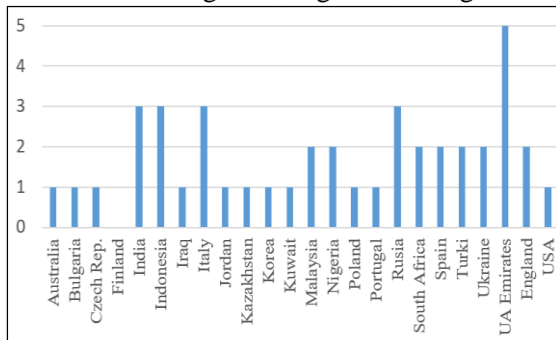


Figure 2. Research country reference sources

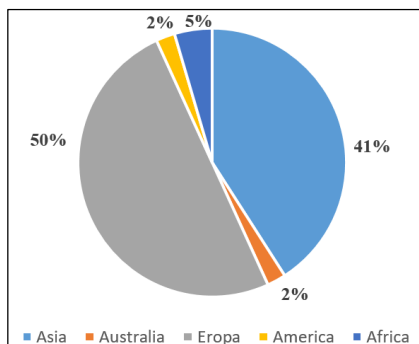


Figure 3. Sources of continental origin used in previous research

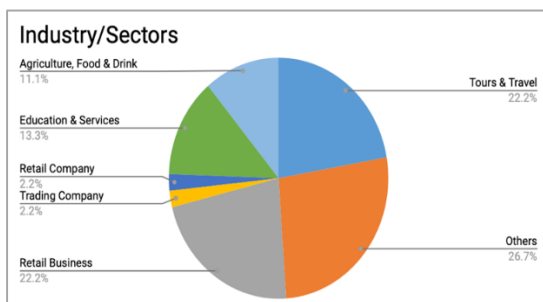


Figure 4. Reference source Industry/sector of previous research object used

This research has used many references from many countries, with some of the research focuses conducted related to the use of mobile technology as a marketing tool in the digital era, especially in terms of applications and the challenges faced by a company in the use of mobile technology as a marketing tool in today's digital age.

Researchers have mapped and analyzed theory-based empirical research from reference journals related to using mobile technology as a marketing tool in the digital era; the mapping results are seen in Table 2.

**Table 2.** Empirical, theory-based research from reference journals used in the Use of

Mobile Technology as a Marketing Tool in the Digital Era

Research Focus/ Research References	Industry/ Sector of Research Object	Analysis of Implementation, Impact & Challenges
	Agriculture, Food & Drink (Ibrahim et al., 2022)	Many impacts & many challenges
	Retail Business (Eze et al., 2019)	Little impact & few challenges
<b>B2B Improvement</b>	Tours & Travel (CAR & STIFANICH, 2020)	Many impacts & few challenges
	Trading Company (Koldyshev, 2020)	Little impact & few challenges
	Others (Andersson & Wikström, 2017; Bolat, 2019; Hu & Olivieri, 2023)	Many impacts & many challenges
	Agriculture, Food & Drink (Spivakovskyy et al., 2021)	There are impacts & few challenges
<b>B2C Improvement</b>	Retail Business (CİVELEK et al., 2020; Khalufi et al., 2019; Riantini, 2020; Rowles, 2017)	Many impacts & many challenges
	Education & Services (Wan Hussain & Abdul Aziz, 2022)	Many impacts & many challenges
	Retail Business (Ishak et al., 2018; Kumar & Mittal, 2020; Tawara & Gide, 2016)	Many impacts & many challenges
<b>Internal Business Improvent</b>	Tours & Travel (Barna & Semak, 2020; Çmar, 2020; Kim & Kim, 2017)	Many impacts & few challenges
	Education & Services (Florido-Benítez et al., 2016)	There are impacts & few challenges
	Others (Elliot et al., 2018; Okrepilov et al., 2020)	Many impacts & many challenges
	Agriculture, Food	There are

	& Drink (Jahan et al., 2022)	impacts & few challenges	Labanauskaitė et al., 2020)	few challenges
<b>Customer Behavior</b>	Tours & Travel (Aziz et al., 2023)	Many impacts & few challenges	Education & Services (AlAwadhi & Al-Daihani, 2019; Florido-Benítez, 2016; Rowles, 2017; Sharma & Berad, 2019)	Many impacts & few challenges
	Others (Syarief Darmoyo & Rakhdiny Sustaningrum, 2022)	Many impacts & few challenges	Others (Ali & Shabina, 2017; Azoev et al., 2021; Bolat, 2017; LEONOW et al., 2019; Vassileva, 2017; Virtanen et al., 2017)	Many impacts & few challenges
<b>Marketing Tool</b>	Agriculture, Food & Drink (Babicheva & Havryliuk, 2019; Sikundla et al., 2018)	Many impacts & many challenges		
	Retail Business (Passavanti et al., 2020)	Many impacts & few challenges		
	Tours & Travel (Al-Hazmi, 2021;	Many impacts &		

Referring to Table 2 above, researchers analyze the impact and challenges of utilizing mobile technology as a marketing tool in the digital era, described in Table 3.

**Table 3.** Detailed table of application implementation analysis, impacts, and challenges of using mobile technology as a marketing tool in the digital era

Industry/ Sector of Research Object	Application and Use of Mobile Technology	Business Impact for the Company	Challenges for Companies
<b>Agriculture, Food &amp; Drink</b>	a. Mobile application and website b. Email marketing c. SMS marketing	a. Increase product demand and customer loyalty. b. Provide sales growth and the formation of stable partnerships. c. Help reduce transportation costs and access market information. d. Help connect rural farmers via mobile phones to market sources.	a. Electricity shortages, network failures, high tariffs charged by operators, and high costs of cell phones. b. High price in creating separate applications for Android and iOS.
<b>Education &amp; Services</b>	a. Mobile application and website b. Social media (YouTube, Facebook, Instagram, and Twitter) c. E-mail marketing d. SMS marketing	a. Services: help passengers manage their time at the airport efficiently, provide information in real-time, and improve passenger satisfaction. b. Education: helps colleges to attract admissions and sensitize students about various activities. c. Get a good company image so that it can increase rev.	a. Device compatibility: not all devices have the same capabilities. b. Very rapid technological change. c. It involves relatively high costs.
	a. Social media (YouTube, Facebook, Instagram, Pinterest, Twitter) b. Mobile	a. Helps improve promotional strategies aimed at increasing sales and service. b. Increase brand visibility. c. Increase the number of product users.	a. Many customers prefer to avoid advertisements received through their mobile phones. b. Customers can easily compare similar

<b>Retail Business</b>	<ul style="list-style-type: none"> <li>application and website</li> <li>c. E-commerce</li> <li>d. SMS marketing</li> <li>e. E-mail marketing</li> <li>f. In-app advertisements</li> </ul>	<ul style="list-style-type: none"> <li>d. Build a good relationship with customers.</li> </ul>	<ul style="list-style-type: none"> <li>products.</li> <li>c. Security of user data.</li> </ul>
<b>Tours &amp; Travel</b>	<ul style="list-style-type: none"> <li>a. Internet of Things</li> <li>b. AI and Chatbots</li> <li>c. Mobile app and website</li> <li>d. E-commerce</li> </ul>	<ul style="list-style-type: none"> <li>a. Increase efficiency and provide a good customer experience.</li> <li>b. It helps save costs significantly, minimize human error, and provide good service.</li> <li>c. It helps distribute information, simplify processes, and increase sales productivity.</li> </ul>	<ul style="list-style-type: none"> <li>a. Technology is constantly evolving, but only sometimes adequate, and impact assessments are not systematic.</li> <li>b. It involves significant costs for application development, maintenance, and technical support.</li> </ul>
<b>Trading Company</b>	<ul style="list-style-type: none"> <li>a. Mobile app and website</li> </ul>	<ul style="list-style-type: none"> <li>a. Can accurately analyze data about customers, behavior, and purchasing decision return mechanisms.</li> <li>b. Solving the problem of employee turnover and employee incompetence.</li> </ul>	<ul style="list-style-type: none"> <li>a. Low readiness for digital change: applications become practical marketing communication tools only when customers use them.</li> <li>b. The market needs to be more prepared to accept new technological solutions.</li> <li>c. Incur additional costs that will have an effect in the long run.</li> </ul>
<b>Others</b>	<ul style="list-style-type: none"> <li>a. Social media (YouTube, LinkedIn, Facebook, Instagram, and Twitter)</li> <li>b. Mobile application and website</li> <li>c. E-commerce</li> <li>d. E-mail marketing</li> </ul>	<ul style="list-style-type: none"> <li>a. Assist in recruiting, searching, and improving product and service information.</li> <li>b. Provide information to customers about service changes that occur quickly.</li> <li>c. Increase brand visibility.</li> <li>d. Assist in the assessment of existing market potential.</li> </ul>	<ul style="list-style-type: none"> <li>a. It takes time to learn and understand how it works or is used.</li> <li>b. Customers can easily compare similar products.</li> <li>c. Security of user data.</li> </ul>

Based on Table 3 above, the application of mobile technology in Agriculture, Food and drink, Education and services, Retail Business, Tours and travel, Trading Companies, and Other industries uses several types of mobile technology such as mobile applications, websites, social media, e-mail marketing, and e-commerce as tools to market the company.

Using mobile technology as a company's marketing tool has a significant positive impact; this includes increased sales, customer loyalty, and brand visibility. However, the benefits are more comprehensive than these aspects. Mobile technology can also save

costs, provide complete information about products and services, and enable accurate data analysis.

In addition to having a positive impact, the use of mobile technology as a marketing tool also faces several challenges that need to be overcome by companies. Three main challenges are the high cost, compatibility of diverse devices, and the security of user data; it must be closed and guarded. In addition, customers also have the convenience to compare similar products quickly.

Therefore, using mobile technology in marketing provides positive benefits and brings many challenges for companies.

## CONCLUSION

Utilization of mobile technology as a marketing tool in sector/industry Agriculture, Food & Drink, Education & Services, Retail Business, Tours & Travel, Trading Companies, and Others implemented using several methods: mobile applications, websites, social media, e-mail marketing, and e-commerce.

Companies' main challenges in utilizing mobile technology as marketing tools include:

- a. High investment in mobile technology implementation.
- b. Providing various means to overcome multiple device compatibility.
- c. The company must maintain the user data strictly.

Although the company faces several challenges in the digital era of the 21st century, inevitably, the company must utilize mobile technology as a marketing tool to survive and continue to develop the company's business.

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