





# The Effect of Marketing Mix on Blockchain Technology with the Mediating Role of Perceived Usefulness

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## Abstract

The purpose of the current research is the mixed effect of marketing on blockchain technology with the mediating role of perceived usefulness in the customers of Bank Melli Iran in Tehran. The research method is applicable in terms of purpose, and descriptive-survey based on the method of data collection. The statistical population of this research is all the customers of the Bank Melli Iran in Tehran in 2023. For this purpose, according to Cochran's formula, 384 people were selected as the sample size, 420 questionnaires were distributed among the customers of the Bank Melli Iran in Tehran by a simple random method, and 393 questionnaires were collected. The data collection tool of this research is a questionnaire. The validity of the research tool has been confirmed by performing the confirmatory factor analysis technique. The reliability of the current research questionnaire was measured by calculating Cronbach's alpha coefficient, which was 0.815. Also, to analyze the data, structural equation modeling method using Smart-PLS3 software has been used. The research results indicate that senior management support, supply chain integration, and innovation capability have a significant impact on blockchain technology. Also, supply chain risk has not affected blockchain technology. Finally, the role of the marketing mix on perceived usefulness is demonstrated. Also, the perceived usefulness is affective on blockchain technology.

## Keywords:

Blockchain Technology, Marketing Mix, Perceived Usefulness, Bank Melli Iran.

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## **Extended Abstract**

### **Introduction**

Blockchain is used for various technology concepts related to databases of value exchange, security and identity among others. Blockchain technology is very important for business today. This technology is constantly evolving. Leading companies in the field of information and communication technology use blockchain technology because of its high security (Akbari Ganjeh et al., 2022). In today's era, experts have called blockchain technology the second internet, which is capable of transforming a large number of current patterns. One of the sectors that can use blockchain is the banking industry. Blockchain is a developing technology and is actually a place in the web world that records the data and information of a group of people in files, but this information is not available in a single place, and people from different parts of the world trade and communicate to each other without any records. Also, the information stored in the blockchain is a digital collection of decentralized records that is not maintained by any person or organization (Ekramifard et al., 2020).

The banking industry is the most important industry in the world. Today, banks in advanced countries act as professional consultants, experts in increasing the financial resources of companies, and collecting and exchanging the necessary information for their customers, and they are considered one of the economic drivers of every country. In modern banking, there are various components that affect the process of mobilizing monetary resources of banks and financial institutions. Determining and identifying the degree of influence and the type of connection of these components with the success of banks in mobilizing monetary resources is a very important issue. Today, the position and conditions of financial institutions and banks are different from each other, and it is possible that the factors affecting the provision of monetary resources are different even for each branch of a banking group, which has caused a close competitive atmosphere between them. Therefore, in this research, we tried to answer this question: what role does the marketing mix have on blockchain technology with the mediating role of perceived usefulness?

### **Theoretical Framework**

Ahmadi et al., (2022) carried out a research titled marketing future research in the banking industry with a focus on blockchain technology. The findings showed that the drivers of marketing researchers' interest in digital financial technologies and blockchain and the development of decentralized banking had the highest priority and were selected for scenario planning.

Hosseingholipour & Einabadi (2022) in a research addressed the effects of international sanctions on the international banking interactions of Iranian companies on the blockchain platform. The results showed that international sanctions in the international banking interactions of Iranian companies can be presented as an opportunity in the context of blockchain, and by using blockchain, international banking interactions can be implemented and managed in a more effective way.

Da Silva & Moro (2021) in a research addressed blockchain technology as a factor of consumer trust: literature analysis using the method of texts. Their findings indicate the relationship between some blockchain features such as tracking and privacy with customer trust. For this reason, marketing, social and economic researchers are advised to focus on the use of blockchain to improve consumer trust.

Ali, Ally & Dwivedi (2020) performed a systematic and analytical review of articles related to blockchain technology in the financial services industry. The proposed classification framework of this research has three components: financial advantages, challenges, and functions enabled by blockchain.

## Methodology

The current research is an applicable research which has been implemented by descriptive-survey method of causal type. The statistical population of the research is the customers of Bank Melli Iran in Tehran in 2023; and to determine the number of samples, since the size of the population is unknown, Cochran's formula will be used to determine the sample size. Therefore, according to Cochran's formula for the unknown population size, the number of samples was 384 people, in which data have been quantitatively analyzed. It has also been analyzed using SPSS and Smart-PLS3 software. In order to collect and measure data, a 43-item questionnaire with a five-point Likert scale (1-completely disagree, 2-disagree, 3-I have no opinion, 4-agree and 5-completely agree) was used. Also, its validity has been confirmed by professors and experts, and its reliability by Cronbach's alpha coefficient.

## Discussion and Results

The results of the analysis of demographic variables, Cronbach's alpha coefficient value and composite reliability for each construct, the values of factor loadings between constructs and the average extracted variance of the research variables, the results of the coefficient of determination and the Stone-Geisser coefficient for the endogenous construct, the output of the software in the effectiveness coefficients, the software output in significant coefficients and the impact coefficients, the value of the test statistic and the results of the research hypotheses and anti-value values and effect intensity of mediating variables were given.

## Conclusion

The purpose of this study was to investigate the impact of marketing mix on blockchain technology with the mediating role of perceived usefulness, on the basis of which 7 hypotheses were investigated, and the effect of all factors on blockchain technology was confirmed except for the fourth hypothesis: the impact of supply chain risk on blockchain technology.

Based on the first research hypothesis: marketing mix has a significant effect on perceived usefulness.

This hypothesis has been confirmed based on statistical analysis. In other words, it can be predicted that if the marketing mix of Bank Melli Iran customers in Tehran is improved, their perceived usefulness will also increase. Therefore, since the marketing mix has an effect on perceived usefulness, they should pay special attention to indicators such as product marketing, price marketing, channel marketing, advertising activities, and individual image. In line with the result obtained in this hypothesis, Lin, Wang & Hwang (2010) showed that marketing mix affects perceived usefulness.

Based on the second hypothesis of the research: the support of senior management has a significant impact on blockchain technology.

This hypothesis has been confirmed based on statistical analysis. In other words, it can be predicted that if the support of the senior management of Bank Melli Iran customers in Tehran is improved, the use of blockchain technology will also increase. Therefore, since senior management's support has an impact on blockchain technology, they should pay special attention to indicators such as attention and active response, confirmation of access to resources, willingness to accept risks, and motivating employees. In line with the result obtained in this hypothesis, Wong et al., (2020) showed that top management support affects blockchain technology.

Based on the third hypothesis of the research: supply chain integration has a significant impact on blockchain technology.

This hypothesis has been confirmed based on statistical analysis. In other words, it can be predicted that if the integration of the supply chain of Bank Melli Iran customers in Tehran is improved, the use of blockchain technology will also increase. Therefore, since the integration of the supply chain affects blockchain technology, they should pay special attention to indicators such as understanding the needs of employees, information sharing, cooperation and coordination and strategic alliance, public and private partnerships, and sharing knowledge and innovation. In line with the result obtained in this hypothesis, Chiarini, Belvedere & Grando (2020) showed that supply chain integration affects blockchain technology.

Based on the fourth research hypothesis: supply chain risk has a significant impact on blockchain technology.

This hypothesis, based on statistical analysis, has not been confirmed. In other words, it can be predicted that if the supply chain risk of Bank Melli Iran customers in Tehran increases, the use of blockchain technology will not change. Therefore, since supply chain risk does not affect blockchain technology, it is necessary to pay attention to indicators such as delays in delivery and selection of products, storage capacity and inappropriate delivery, demand fluctuations, poor forecasting, labor shortages, closures, and price fluctuations. Contrary to the result obtained in this hypothesis, Wang et al., (2020) concluded in their research that supply chain risk has a positive and significant relationship with blockchain technology.

Based on the fifth hypothesis of the research: innovation capability has a significant impact on blockchain technology.

This hypothesis has been confirmed based on statistical analysis. In other words, it can be predicted that if the innovation ability of Bank Melli Iran customers in Tehran is improved, the use of blockchain technology will also increase. Therefore, since the ability to innovate affects blockchain technology, it is necessary to pay special attention to indicators such as using innovative techniques, regular improvement in operations, adopting innovative and technical solutions, using standard and simple operations, and protecting against risks. In line with the result obtained in this hypothesis, Wang et al., (2020) showed that innovation ability affects blockchain technology.

Based on the sixth hypothesis of the research: perceived usefulness has a significant impact on blockchain technology.

This hypothesis has been confirmed based on statistical analysis. In other words, it can be predicted that if the perceived usefulness of Bank Melli Iran customers in Tehran is improved, the use of blockchain technology will also increase. Therefore, since perceived usefulness affects blockchain technology, they should pay special attention to indicators such as obtaining information, saving money, being helpful, and being useful. In line with the result obtained in this hypothesis, Lin, Wang & Hwang (2010) showed that perceived usefulness affects blockchain technology.

Based on the seventh hypothesis of the research: there is a significant relationship between the marketing mix of blockchain technology and the mediating role of perceived usefulness.

This hypothesis has been confirmed based on statistical analysis. In other words, it can be predicted that if the marketing mix of Bank Melli Iran customers in Tehran is improved, the use of blockchain technology with the role of mediating perceived usefulness will also increase. Therefore, since the marketing mix has an effect on blockchain technology with the mediating role of perceived usefulness, they should pay special attention to indicators such as product marketing, price marketing, channel marketing, advertising measures, and the image of a person. In line with the result obtained in this hypothesis, Lin, Wang & Hwang (2010) showed that marketing mix affects blockchain technology with the mediating role of perceived usefulness.