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The attitude of the auditing profession to the emerging blockchain technology and the obstacles ahead with the structural equation modeling approach

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ABSTRACT

The development of accounting and auditing is tied to the development of modern technologies. Blockchain technology with potentials such as information transparency, security, asset management and smart contracts will create a very suitable opportunity for the audit profession. Just as the blockchain system is seeking to influence transaction processing and standardization in many industries, auditors should also have many effects in the field of assurance of their reports by using this technology. The purpose of this research is to identify the attitude of members of the auditing profession in using the capabilities and advantages of blockchain in auditing and its obstacles. In this regard, two basic questions were formulated. In order to answer the questions, 264 questionnaires were collected from Iranian certified public accountants. Descriptive statistics and structural equation model were used for data analysis. Considering the appropriateness of reliability, convergent validity and divergent validity of the measurement model and the meaningfulness of all paths related to the structural model and the appropriate fit of the overall model based on the goodness of fit index, the findings of the research show that the attitude of the auditing profession indicates that There is a positive attitude and general consensus that Iran will accept blockchain technology, but with more doubts and at the lowest rank, they believe that this technology will affect their work. Also, the results indicate that the areas of technology, law and auditing are the most effective obstacles in using this technology.

Keywords: blockchain technology, audit, attitude, obstacles, structural equation modeling

1. Introduction

Information technology is one of the important environmental factors that have serious effects on the position, performance and fate of societies, organizations and individuals. (Rong-Ruey, 2006). One of the advantages of using information technology in organizations is speed in doing things, saving time, reducing costs, paperless administrative system, etc. Today, information technology is playing an increasingly large role in all aspects of production, distribution and sales methods. In recent years, information technology has been the driving force behind many productivity gains, and for many reasons, it is expected to continue this role (Kordestani and Hadilu, 2011). Considering the speed of developments in the third millennium, especially in the field of information technology and virtual production of data in the business space, accounting and management information systems have not been immune from the mentioned changes and We are witnessed the wide application of information technology in the accounting profession. The main feature of accounting in today's business world is the interaction of professional accountants with computer information systems. Accountants, like the main users of accounting information systems, should participate in designing the system and understanding the operations of economic enterprises. Society has become increasingly dependent on accounting information systems to meet its information needs(Sajjadi and Tabatabaeinejad, 2012).

Information and the technology that supports it are the most valuable assets for many economic enterprises. One of the main concerns of investors is obtaining information that they can rely on to make financial and economic decisions in the best way. Users of financial statements can rely on the financial information reflected in the financial statements when an independent, competent and impartial person has provided a professional opinion on the validity of this information. In current socio-economic systems, the task of commenting on financial statements has been assigned to independent auditors (Standards on auditing, 2017). The work of auditing is focused on the axis of collecting and evaluating evidence, and this issue forms the foundation of auditing. Therefore, in any type of audit, it is necessary to collect and evaluate the required information and evidence. In order to provide an opinion on the company's financial statements, the auditor must gain a complete understanding of its activities and the internal control structure (Moradi and Bayat, 2018). In this situation where trading is done in a fraction of a second, the need of managers and investors for real-time, relevant and reliable information has increased, therefore, the category of audit has become very important.

Tapscott and Tapscott (2016) have recognized several problems within the creation of the ledgers. They believe that despite the increased use of technology and internal tools, there is still the possibility of human errors in accounting. These errors can be general mistakes, but it can also be self-made modifications of the transactions in the audit trail creating an incorrect ledger. To create not accurate financial statements in an accounting department can lead to costly and damaging consequences.

On the one hand, the volume of operations and the complexity of information has made it difficult to do works correctly, but on the other hand, new technologies, including blockchain technology with high speed in processing and analyzing information, high security of information, the possibility of electronic exchange of information, providing high quality information, providing the possibility of comparing information, responding and making the right decision has been facilitated, Therefore, the existence of these cases has made the use of information technology necessary. Blockchain has become an unavoidable future in enterprise finance, particularly enabling and securing cross-company transaction(Fikri et al., 2022). In general terms, blockchain in accounting and auditing can be considered as a technology to create integration between the accounting systems of the company and the contracting parties(Deloitte, 2016). By eliminating intermediaries and using the power of collaborative networks, blockchain practically brings a new opportunity for business in reducing transaction costs and speeding up the transfer of funds and transaction time in a very impressive way(Pakravan, 2018).

The foundation of the accounting profession is based on validation)Rabihavi, 2018). According to the capabilities of the blockchain, it is possible for this system to be used for audit software, in which case the auditability of information is greatly increased and audit in real time can be carried out, and in an environment where the role of a mirror is for the physical and material environment, all processes and events of the

company can be reviewed and handled(Dai, 2017). According to the theoretical foundations and background of research, blockchain technology can greatly help to increase the quality of accounting information and audit operations. In the same way, the prominent businesses of the world have also dedicated a significant part of their resources and time to studying blockchain, its applications and providing some innovations based on it in order to guarantee their not-so-distant future.

The next step in the development of blockchain in the auditing profession is to find a way to combine today's audit software and blockchain to allow traditional audit processes, control evidence and reporting to be successfully implemented in a blockchain. Previously, a review has been done through the computer, but now the review will be done by the computer. This trend is expected to be more prominent since artificial intelligence and other automation technologies continue to drive the audit into a real-time process(Levenby and Sahlin, 2018). Deloitte, Ernst & Young, PWC and KPMG audit firms, as the top four auditing firms in the world, have each taken steps to use blockchain technology in their services. In 2014, Deloitte audit firm established Robix team in Toronto, Canada with the aim of updating applications based on distributed ledger. Ernst & Young audit firm was the first audit firm to accept bitcoin for its services(in selected locations). Since the beginning of 2017, the customers of the Swiss branch of the said firm have the possibility to pay the audit and consulting invoices using bitcoin. In January 2016, PWC Audit firm started the exploitation and commercialization of blockchain technology with the help of 15 international experts in the field of leading technologies. Also, this firm cooperates with various companies with public and private ownership to promote the use of blockchain all over the world. KPMG audit firm also launched its "Encrypted ledger" in September 2016. The aforementioned ledger is a set of services designed to help financial services companies in the field of using the power of blockchain technology(Fouadzi, 2018). There are different opinions about conducting audits on the platform of blockchain, some believe that with the advent of blockchain, all trades and commercial exchanges will take place in a controllable and traceable network and these events will be shown in a transparent manner in the blockchain network in an unchangeable way. Thus, with these conditions, there is no need for an independent auditor to audit at the level of organizations. However, unlike this group of professionals, other professionals state that this analysis is done without considering the principle that this attitude expresses a non-comprehensive view of auditing because it covers only one of the important aspects of the audit of the financial statements of companies, which is related to the evaluation of accurate recording of data and transactions, but other aspects of auditing, such as the reliability of data, their purposefulness, their accuracy and verifiability, are among other issues that this technology is not able to control and pay attention to them, at least in the current conditions.

According to their belief, the presence of this technology allows auditors to provide services with higher added value, including the review of transactions with high complexity and the effectiveness of internal controls, with a more relaxed imagination and by spending less time and money on this matter(Deloitte , 2016) and be more successful in risk assessment(Davani, 2019). Blockchain technology can be a factor of transformation in the relatively old accounting profession, and it is better if this innovation is registered in the name of Wall Street(Pakravan, 2018). Also, this technology leads to transformation, transfer risk and artificial technology in auditors' operations (Pimentel et al., 2021). The design, implementation and application of blockchain in accounting has not yet been fully completed, but due to the progress made, it is time for accountants and auditors to switch to this technology (Kozlowski, 2018). Blockchain technology has created tangible challenges in the auditing industry and requires transformation in this field. The comprehensive knowledge of audit institutions in the field of commercial and government activity makes consultants able to use these new technologies (Liu et al., 2019).

Significant stressors such as the global Covid-pandemic, resultant disruption to supply chains, war in Europe and decline in economic growth combined with rampant inflation, increased global political instability, continued cyberattacks, and increased regulatory disclosure demands resulting from threatening climate change and disruptive technological advances are among the cases that raise the need for remote auditing and the use of this

technology(Bernice Donald et al, 2021). The emergence of important changes in today's accounting environment, progress, complexity and multiplicity of business transactions and auditors' need for comprehensive information have led to the high importance of research in the field of auditing and accounting. Considering the trend of accounting on the blockchain platform, the role and importance of using blockchain in the auditing profession and its impact on the efficiency of this profession and the future horizon of auditing on the blockchain platform, identifying the attitude of the members of the auditing profession in Iran and its obstacles to using this Modern technology is important in the future. According to its purpose and type, this research does not investigate any predetermined hypothesis and instead of having hypotheses for testing, it includes questions that seek to answer them:

1) What is the attitude of the auditing profession towards the use of blockchain technology in accounting systems?
2) What are the obstacles to using blockchain technology in accounting systems from the point of view of the auditing profession?

2. Theoretical foundations and research background

2.1. Attitude

The desire or tendency to show favorable or unfavorable reactions to specific stimuli such as people, ethnic or racial groups, customs and institutions. Attitudes cannot be observed directly or indirectly, but it can be inferred from people's verbal and non-verbal behavior.

According to this definition, attitude consists of three elements:

1) Tendencies: which may be in favor, against or neutral towards the subject or the person under discussion. Tendencies lead us to judge and evaluate positively or negatively.
2) Knowledge or belief: what we know and recognize or believe about the person or subject in question.
3) Behaviour: it determines whether we are inclined towards the person or subject or avoid it (Gill and Adams, 2005). In another definition, Alport has defined attitude as follows: "Attitude is a state of mental and nervous readiness that is organized through experience and has a direct and dynamic effect on a person's reaction to all issues and situations related to attitude"(Khalifeh soltani, 2016).

In the current research, in order to identify the attitude of members of the auditing profession, the following questions are asked:

1- Should Iran accept the use of blockchain, 2- Does the use of blockchain improve the quality of financial reporting, 3- Will Iran accept the use of blockchain and, 4- To what extent does accepting this technology affect their jobs? This variable will be measured by a questionnaire prepared by the researcher and will be ranked in the range of completely disagree to completely agree.

2.2. Blockchain

Blockchain is a database based on distributed ledger technology(Thaghafi and Jamalianpour, 2018). This technology is a system in which transaction records are stored in blocks that are interconnected through multiple computers connected to a peer-to-peer network and algorithms are used to confirm transactions(Day and Vasarhelyi, 2017, Kostrikova et al., 2017). This autonomously managed technology uses a distributed scheduling server(Bruyn, 2017). In 2016, Michael et al stated that one of the most important components of blockchain technology is the use of hashed cryptographic functions for many operations. A hash function is a data encryption method that computes a relatively unique output(such as a message alert) for an input(such as a file, text, or image) and allows individuals to Obtain input data independently. There is no change in the data because even the smallest change in the input (for example, changing one bit) will lead to a completely different hash in the output(Hashemi, 2019). Along with its extraordinary transparency and security, blockchain can meet many practical needs and even provide a certain level of anonymity to ecosystem users(Deloitte, 2018).

2.3. Research background

A lot of foreign research has been done on blockchain and its applications, and in this section, only the research related to the research topic is stated:

Jakovljevic(2022) presented in his article Challenges for cryptocurrency audit and attitudes of practitioners in the audit in the Republic of Serbia. This paper will explain the issue of cryptocurrencies from the auditor's point of view through the analysis of client acceptance and continued engagement, the correctness of the accounting coverage, and the impact on business continuity. The main conclusion is that the persons engaged in auditing in the Republic of Serbia, in most cases, have only a basic knowledge of cryptocurrencies and believe that they need additional training to increase their level of knowledge and expertise.

Li et al., in a research on the topic of blockchain-based cross- user data shared auditing in 2022, put forward two blockchain-based scenarios. The first scenario is Diffie-Hellman data shared auditing, which leads to a reduction in audit costs. The second scenario is cross- user data shared auditing, which not only leads to the removal of encrypted data, but also ensures the security of outsourced data against online and offline cyber attacks. Finally security and performance analysis evaluate the practicability of the proposed schme.

In 2022, Faccia et al. tried to answer the question "Is Permissioned blockchain the key to support the external audit shift to entirely Open innovation paradigm?". The analyses demonstrate that the current Semi-Open innovation external audit model is inefficient because it has led to market concentration, conflicting interests, and even fraud. Therefore, the regulators' role in promoting fully Open innovation models in the audit industry is essential to ensure transparency, information sharing, fair competition, innovation, and collaboration among audit professionals. The innovative introduction of a Permissioned blockchain-based audit system is also suggested to ensure the feasibility of the shift from Semi-Open to Open innovation.

Fikri et al.(2022) have studied subject " a blockchain architecture for trusted sub-ledger operations and financial audit using decentralized microservices". The aforementioned Architecture is based on decentralized microservices tree and triple entry accounting(TEA) and replaces the multi ledger structure for internal users in one entity or organization. The research approach is the applications of decentralized sub-ledger with an implementation tree for assets-driven transactions. Furthermore, the government's audit and taxation procedures for financial groups are more accessible by combining proof of authority and proof of stake to assure the logic of more stake more reputation to preserve.

Desplebin et al(2021) investigated blockchain and the future of accounting and auditing. The result show that three major issues regarding the future of blockchain in accounting and auditing emerge: the transformation of accounting techniques; main evolutions in accounting and auditing; and main evolutions in the work, skills and education of auditors.

Liu et al. in 2021 conducted a research with subject blockchain's impact on accounting and auditing: a use case on supply chain traceability. In this study use The transaction cost theory proposed by Coase(1937). The theoretical framework to examine the potential impact of the blockchain technology on accounting and auditing proceses in terms of information timeliness, information quality, and auditing costs. In this article, how to use blockchain works in the supply chain of food products and the process of tracking goods moved at different stages and recording related transactions are presented. Finally, a scenario is drawn based on the transaction cost framework in accounting and auditing processes with relevant information.

Pimentel et al.(2021) examined the challenges of auditing blockchain-based assets. In this research, the repeated process of interviews with senior accountants and structured brainstorming among the multi-skilled team of accountants and blockchain experts have been used (focused group of experienced auditors).The analysis shows the obstacles to auditing blockchain companies and criticizes the traditional auditing program. Therefore, the belief that auditors should consider the blockchain sector as a challenging theory for auditors that cannot be overcome.

Elommal and Manita(2021) examined how blockchain innovation could affect the audit profession. The results shows that this technology could affect audit firms at six key levels, Blockchain will allow an auditor to save time and improve the efficiency of their audit, favor an audit covering the whole population instead of an audit based on sampling techniques, focus the audit on testing controls rather than testing transactions, set up a continuous audit process, play a more strategic audit

role and develop new advisory services. The results underline the need for the establishment of a clear and coherent legislative system and new audit standards, allowing auditors to embed this technology and enhance audit practices.

Garanina et al. presented in 2021 blockchain in accounting research: current trends and emerging issues. The four most commonly discussed areas of blockchain include the changing role of accountants, new challenges for auditors, opportunities and challenges of blockchain application technology, and the regulation of cryptoassets. The introduction of blockchain in accounting and auditing leads to the change of the auditor's task from administrative to prominent advisory and the introduction of competitive intelligence in business strategy, the role of auditors as predictors and approvers of transactions in the accounting ecosystem and even whole supply chains. Challenges include skilling up for a new paradigm, the logistical issues associated with managing and monitoring multiple parties all contributing to various public and private blockchains, and the pressing need for legal frameworks to regulate cryptoassets.

Silva et al. wrote the effects and potential applications of blockchain technology in auditing in 2021. The results indicate that the new possibilities, like real time auditing, associated with the conference of assets physical existence and their comparison of what is on the blockchain with the accounting records and the real world by the auditors represents a new reality and new challenges in terms of skills and knowledge.

The article by Gregor and Carpenter(2020) examines the potential threats for the auditing profession, auditing firms, and Audit Processes Inherent in Using Emerging Technology. These threats include concerns related to the integrity and security of data inputs, the auditor placing too much reliance on technology to the detriment of their professional development and exercise of professional judgement, a shortage of skills, the costs of technology implementation, disruptions to the status quo of the audit profession and auditing standards potentially being outdated.

in 2020, Ferri et al. conducted a study titled "ascertaining auditors intentions to use blockchain technology: evidence from the big accountancy firms in Italy". this study uses an integrated theoretical frame merging the third version of the technology acceptance model (TAM3) and the unified theory of acceptance and use of technology (UTAUT). They found that the main predictors of auditors' intention to use blockchain were performance expectancy and social influence.

The findings of Yu et al. in 2019 titled "Blockchain: The Introduction and Its Application in Financial Accounting" show that fraud on primary data is a threat that this application may bring with it, but this problem can be reduced by auditing. The focus of independent auditing will shift from preventing counterfeiting in accounting to analyzing the reasonability and authenticity of business operations. Moreover, the duty of financial accountants will change from recording transactions and preparing financial statements to ensuring the authenticity of source documents and the reasonability of smart contracts used in accounting blockchain. Other threats including the information reliability of firms and increasing difficulty of regulation can cause hindrance to the application. One possible solution to solve these problems is to apply consortium blockchain instead of public blockchain, but it will correspondingly weaken the fundamental characteristics of blockchain technology. Overall, the application of blockchain in financial accounting has opportunities and threats. And once the technology is mature enough, it probably will bring fundamental changes to financial accounting and auditing even the whole financial markets.

Schmitz and Leoni(2019) researched accounting and auditing at the time of blockchain technology. They found that the most discussed themes in scholarly works and professional sources are governance, transparency and trust issues in the blockchain ecosystem, blockchain enabled continuous audits, smart contract applications and the paradigmatic shift in accountants' and auditors' roles. Based on these four themes, practical implications for accountants and auditors on how to approach the blockchain development are provided.

2.3.1. Internal research

Mahdi Maranjouri and colleagues presented a model of the most effective factors driving blockchain in business development in 2022. The highest driving factor related to the social factor and then the economic, environmental, technological, legal and political factors were placed in the next priorities respectively.

Borhani et al.(2021) conducted a research on determining the new role of accountants, identifying the challenges and weaknesses of blockchain technology using the technology acceptance model. The result of the present study show that he main reason for accepting this new technology is the perceived usefulness as a result of a positive impact on the quality characteristics of information and accountants have new roles and tasks in their field of work. This technology also has weaknesses that should be pay attention.

Maranjouri presented an article with the title of the test of the attitude of auditors towards marketing activities among the members of the Iranian association of certified public accountants in 2021. The results of the research showed that the attitude of Iranian auditors towards marketing activities is positive. Also, there is a significant difference between the attitude of auditors towards marketing activities in terms of professional experience and age. But there is no difference between the attitude of auditors towards marketing activities in terms of job position and gender. In the article of Barzegar and Ahmadi(2020) titled Auditing in the world of blockchain, it is stated that the use of blockchain will increase public trust in financial information incredibly and will eliminate some of the assurance services of auditors. On the other hand, this technology increases the credibility of this profession by removing some of the existing limitations in the principles of accounting, auditing and finance, and points to the fact that in the near future, all companies will need technology-savvy accountants and auditors.

The results of the research conducted by Kashanipour and Lotfi(2019) on the topic of blockchain technology in accounting and auditing show that the implementation of blockchain technologies in accounting and auditing does not change their basic principles, But it increases the audit capacity. The article by Arabmazar Yazdi and Ganji(2019) on the subject of blockchain and its applications in the accounting and auditing cycle, raises basic issues about how to create a transparent, verifiable and timely accounting ecosystem using blockchain technology. In addition, blockchain has the ability to create a transformation in the common audit approach and launch the automatic audit system with more accuracy. Along with these potential applications, blockchain technology can be a suitable and safe alternative to the current accounting and auditing systems.

Davani(2019) and Thaghafi and Jamalianpour(2018) in their research on the future of the accounting profession in the light of cloud computing and blockchain and blockchain and the future of accounting and auditing found that with the use of blockchain technology, the level of public trust in financial data And accounting will rise to an incredible extent. Also, some claims at the level of financial statements will be accepted without the need to perform assurance services(auditing). In general, blockchain technology will improve the credibility of these professions in the eyes of the general public by removing some of the existing limitations in accounting, auditing and financial principles and regulations.

Rabihavi(2018) presented an article on the application of blockchain digital currencies in accounting and auditing. she points out that the accounting profession is based on validation. These are the issues that have been approved in blockchain technology. Due to the characteristics of blockchain, its use leads to improved efficiency and acceleration in accounting and auditing processes.

Hedayati(2018) In his phd thesis identified the attitudes and educational needs of Iranian Certified Public Accountants towards the Implementing of International Financial Reporting Standards in Iran and investigated the differences in attitudes and educational needs according to their individual characteristics. Results indicate that educational needs of ICPAs are different according to their academic certificate and prior experience and education in applying IFRSs. Also there is a positive attitudes and General consensus about adopting IFRSs, but there are serious uncertainties about them being adopted in Iran. Mozhgani(2015) identified and ranked the executable impediments of virtual auditing in Iran. According to the results of this study, technology field impediments, among all seven effective fields on this type of audit, was recognized as the most important executive impediment of virtual audit in Iran in the view point of auditors. The results obtained from Nazari Radsani research in 2013 indicate that Tehran municipality auditors don't apply computer auditing due to the lack of knowledge about it, uncertainty about its complication, and lack of access to computer auditing software. The factors limiting the use of computers in

auditing by independent auditors in Iran were investigated by Naghizadeh Idanloo in 2009. Limiting factors include auditors' reluctance to use computers in auditing, insufficient familiarity with computer auditing, lack of auditing software, and lack of necessary training for independent auditors to familiarize themselves with computer auditing.

KhanMohamadi(2009) investigated the obstacles of using intelligent agents in independent auditing. The findings of the research show that the reasons why audit profession in Iran do not use intelligent agents are not having enough knowledge of the use of intelligent agents, the uncertainty of the benefits of using intelligent agents in comparison with its cost, the lack of sufficient texts in the field of using intelligent agents, the lack of suitable software for Audit matters and ambiguity regarding better judgment. The findings of Asgari's research in 2008, titled as obstacles to the use of computer-aided audit techniques in private sector firms, indicate that private sector audit firms for reasons such as the lack of familiarity of audit firms' employees with computer audit techniques, the high cost of hardware and software used, the high cost of training employees and the problems caused by the use of software in real situations, They do not use computer-aided auditing techniques.

3. Research methodology

From the point of view of the objective, the current research is placed in the category of descriptive-survey study because the researcher seeks to describe the true characteristics of a phenomenon and does not manipulate the variables and phenomena under study and simply examines them as they are (Hafeznia, 2010). In terms of implementation logic, the upcoming research is deductive-inductive because the researcher does not observe the phenomena but tries to test the proposed models and theories in the real world (Banimahd et al., 2016). The present study is applied-developmental from the point of view of the implementation result. Statistical population is the field of generalization of research results and findings. Therefore, the statistical population includes all the investigated people from among whom the researcher selects sample units. The statistical population of this research is the members of the Iranian association of certified public accountants. This collection includes 2104 people. Random sampling was selected through Cochran's formula and finally 264 questionnaires were collected. Among the four necessary data collection tools, the measurement tool used in this research is a researcher-made questionnaire based on the literature review of the research subject and the opinions of experts in the relevant field. The questionnaire contains 3 sections of demographic characteristics, attitude questions (4 questions) and indicators related to the obstacles section (6 areas).

There are various methods to determine the validity of measurement tools, one of which is asking experts(Sarmad et al., 2004). The validity index of the questionnaire has been checked by 12 experts and its validity has been confirmed. In order to determine the reliability of the measurement tool, there are several methods, one of which is measuring its internal consistency(Conca et al., 2004). The reliability of a measuring instrument mainly refers to the accuracy of its results(Danaeifard et al., 2009). The internal consistency of the measuring instrument can be measured by Cronbach's alpha coefficient (Cronbach, 1951). Cronbach's alpha coefficient was used in order to ensure the reliability of the questionnaire and the internal evaluation of the questions. The coefficient obtained from the attitude section of the questionnaire is 0.79 and the obstacles section is 0.74, which indicates that the questionnaire has acceptable reliability and guarantees that by repeating the data collection through this tool, it is most likely we will get identical data.

4. Research findings

The collected data has been examined and analyzed in line with the research variables.

First, the demographic variables of the research were investigated using descriptive statistics, and then the research variables were measured. Structural equation method was used to measure the research variables and SPSS 26 and SMART PLS 3 statistical software were used for data analysis.

4.1. Demographic statistical data

Table 1 shows the demographic descriptive statistical data of the 264 members of the statistical sample of the research based on what was in the questionnaire

Table 1: Descriptive demographic statistical data of the members of the statistical sample

gender	quantity	woman	man				Total
	frequency	59	205				264
	Percent	35/22	65/77				100
Age	quantity	25-30	31-35	36-40	41-45	More than 45	Total
	frequency	20	53	48	47	96	264
	Percent	58/7	08/20	18/18	80/17	36/36	100
Audit experience (Year)	quantity	0-5	6-10	11-15	20-16	More than 20	Total
	frequency	58	51	50	60	45	264
	Percent	97/21	32/19	94/18	73/22	05/17	100
education	quantity	Bachelor	Master	PHD			Total
	frequency	31	176	57			264
	Percent	74/11	67/66	59/21			100
Number of workplace employees (person)	quantity	10-30	31-60	More than 60			Total
	frequency	106	57	101			264
	Percent	15/40	59/21	26/38			100

Source: Researcher's findings

4.2. Inferential statistics

4.2.1. Sampling adequacy test

Before dealing with the modeling of structural equations, in order to determine the sample size, the Kaiser-Meyer-Olkin(KMO) test and Bartlett's Test of Sphericity are used. The KMO index represents the adequacy of sampling, which examines the smallness of the partial correlation between the variables and in this way determines whether the variance of the research variables is influenced by the common variance of some hidden and fundamental factors or not. Bartlett's test of sphericity is another method for determining the appropriateness of data. This test examines the hypothesis that the observed matrix belongs to a community with uncorrelated variables. For a factorial model to be useful and meaningful, variables must be correlated.

4.2.2. Structural equation modeling

Structural equation modeling(SEM) is a data analysis technique designed to evaluate the relationship between two types of variables. A: Observed variables are variables that are directly measured. B: Latent variables or variables that are considered as theoretical constructs. Compared to other data analysis techniques, the structural equation model makes it possible for the researcher to test complex theoretical models in one analysis. A very valuable feature of the structural equation model is the simultaneous analysis and processing of relationships between the variables of the measurement model(Maryama, 1997). This method is a set of statistical methods for modeling the relationships between independent and dependent variables (structural model) and latent and observable variables (measurement model), which are methods of factor analysis, regression and or path analysis is formed(Kirschkamp, 2008). In structural equation modeling, firstly, the measurement model evaluation (measurement of the relationship between latent variables and their indicators) is done by evaluating the factor loadings, composite reliability, Cronbach's alpha, convergent and divergent validity, and the quality test of the measurement model. The evaluation of the whole structural model(examination of the relationship between the latent variables with each other), the coefficient of determination, their path coefficients and their significance, and the predictor correlation index have been put to the test plant, and at the end, the goodness of fit index has been calculated.

In this research, attitude variables and obstacles are latent variables. The results of inferential statistics are as follows:

1. Attitude variable

According to the table (2), it can be seen that the KMO index indicating the adequacy of sampling and Bartlett's test is also estimated in such a way that the significance level is less than 5%. Therefore, it can be concluded that at the 5% error level or the 95% confidence level, the null hypothesis is not confirmed,

and therefore, the one hypothesis, that is, the adequacy of the model, is accepted.

In order to evaluate the fit of the measurement model, the factor load related to the measured indicators of each variable is examined. The value of the criterion for the appropriateness of factor loading coefficients is 0.4 (Syed Abbaszadeh et al., 2012). The obtained factor loadings are higher than 0.4, which shows that all related questions are desirable and none of the questions are deleted. The results are given in Table 3.

In the following, other results related to the assessment of the fit of the measurement model, structural model and general model are presented.

Table 2: Sampling Adequacy test

Kaiser-Meyer-Olkin (KMO)		**678/0**
Bartlett's test	Chi-square coefficient	872/117
	Degrees of freedom	6
	Significance level	0001/0

Table 3: factor loading related to the main variables

variable	component	Observed variables	factor load	Rank
Attitude	Iran should accept blockchain technology.	N1	734/0	3
	Iran will accept the use of blockchain technology.	N2	744/0	1
	If Iran adopts blockchain technology, this issue will improve the quality of financial reporting.	N3	736/0	2
	If blockchain technology is adopted in Iran, it will affect your work.	N4	452/0	4

Table 4: The results of model fit evaluation

Model type	Criterion	Indicator	Standard value	The value extracted from the research model
Model measurement	Reliability	(CR)	P > 0/7	854/0
		Cronbach's alpha		807/0
	validity	Convergent validity (AVE)	> 0/4 AVE	524/0
		Divergent validity-Fornell and Larcker	The root AVE must be greater than the correlation of that variable with other latent variables.	760/0
Structural model	The usefulness of the model	R^2	The values of 0.19, 0.33 and 0.67 are considered as the criterion value for weak, medium and strong coefficient of determination.	506/0
		Q^2	It has values of 0.02, 0.15 and 0.35 to show the weak, medium and strong predictive power of the structure or structures related to it.	16/0
General model	General model desirability	GOF	Three values of 0.01, 0.25 and 0.36 have been introduced as weak, medium and strong values.	28/0

Based on the composite reliability coefficient criterion in Table 4, the attitude variable has the necessary reliability. In addition to this criterion, the AVE and the square root values of AVE show that the research variable has the necessary convergent and divergent validity. The obtained values of R2 and Q2confirm the fit of the structural model.

The GOF value listed in Table No. 4 indicates the appropriateness of the general research model. Finally, the structural equation model of the attitude variable has been extracted, which is shown in Figure 1.

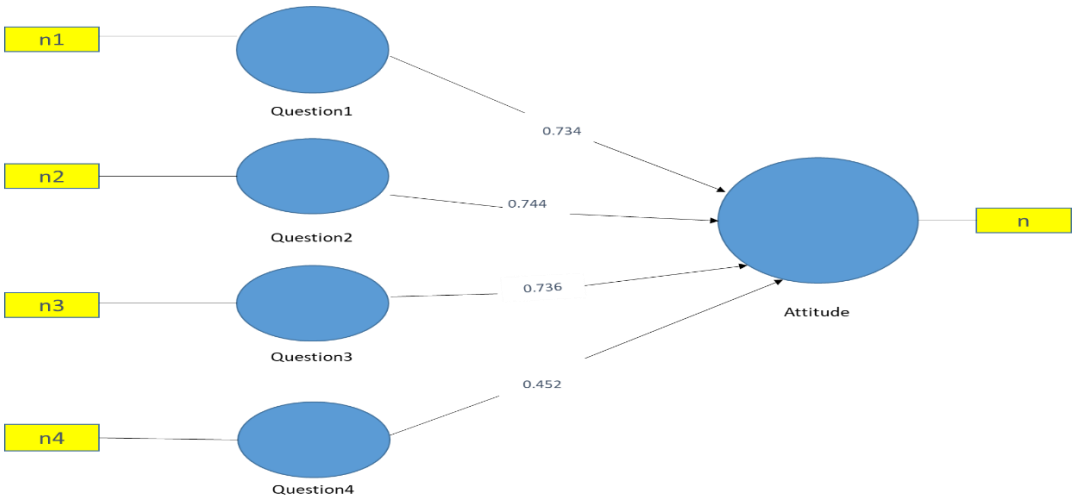

Diagram 1: Conceptual diagram of attitude

2. Obstacles variable

The values obtained from the KMO and Bartlett test, as described in Table 5, indicate the appropriateness of the sample size and the acceptance of the adequacy of the model.

In order to measure the reliability of each of the observable variables, the factor loadings of each index are examined. The results of Table 6 indicate the appropriateness of factor loadings.

According to the data analysis algorithm, the standard values for the fitting indexes of the measurement model, structural model and general model have been determined. The composite reliability and Cronbach's alpha are 0.790 and 0.789, respectively, and AVE and its square root are 0.509 and 0.732, which all indicate that the fit indices of the measurement model are favorable. The values of 0.498, 0.15 and 0.25 represent R^2, $Q^2$and GOF, respectively, which confirm the appropriateness of the fit of the structural model and the General model. Diagram 2 has drawn the conceptual model of the obstacles variable.

Table 2: Sampling Adequacy test

Kaiser-Meyer-Olkin (KMO)		**706/0**
Bartlett's test	Chi-square coefficient	398/146
	Degrees of freedom	15
	Significance level	0001/0

Table 3: factor loading related to the main variables

variable	**component**	**Observed variables**	**factor load**	**Rank**
Obstacles	Audit field	M1	0.704	3
	Structural field	M2	0.630	4
	The field of law	M3	0.714	2
	The field of education	M4	0.614	5
	The field of human resources characteristics	M5	0.497	6
	Technology field	M6	0.737	1

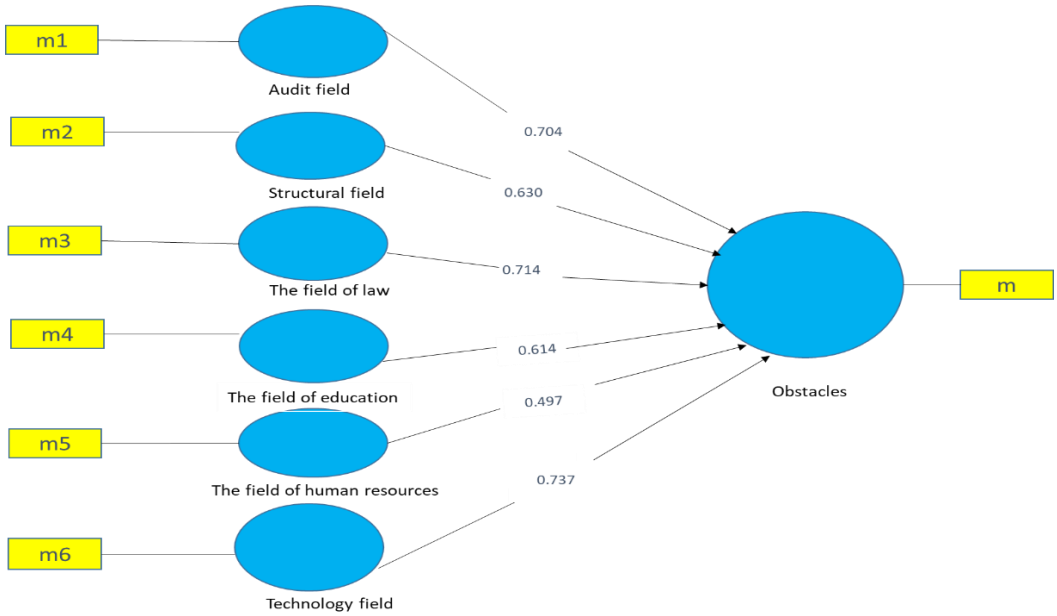

Diagram 2: Conceptual diagram of obstacles variable

4.3. Analysis of findings

Information technology has artistically changed the way of doing business and managing business information. In e-commerce, most of the information is in electronic form, and the results in the audit environment force auditors to audit electronic documents and evidence. Also, the necessity of timely accounting report has put more pressure on the auditors, to provide timely audit services(as soon as they occur), or in other words, to use continuous audit, which minimizes the time required to announce the opinion of the auditors at an acceptable level(Ling Yu Chou et al., 2007). Blockchain is currently known more for empowering cryptocurrencies, but in the near future, it can create a new revolution in the field of accounting and auditing. Blockchain has been presented with the aim of tracking and validating accounting data by the asset group in the context of a smart contract, in order to implement the operations of approved subsidiary ledgers(Fikri et al., 2022). The possibilities that blockchain brings to information disclosure, fraud detection, and overcoming the threat of shadow dealings in developing countries all contribute to the importance of further investigation into blockchain in accounting and auditing(Garanina et al., 2021).

Today, related policies for financial reporting of companies in the field of financial statements, including the organization's assets and liabilities, have been accepted digitally in accordance with financial reporting standards and accounting principles in the United States of America. Therefore, auditors regarding the applicability of auditing methods using blockchain should first of all examine the advantages and risks of using this technology in the field of auditing profession(Chartered Professional Accountants Canada and American Institute of CPAs, 2017).

The upcoming research has been conducted with the aim of identifying the attitude of the auditing profession towards the use of blockchain technology in accounting systems and the obstacles to using this technology from the perspective of the auditing profession. The approach used in this research is structural equation modeling. What are the results of data analysis to answer the question of the attitude of the auditing profession towards the use of blockchain technology in accounting systems? It shows that there is a general consensus and a positive attitude regarding the adoption of blockchain technology in Iran. Based on the results of the respondents, the first to third rank was assigned to the questions Iran will accept

blockchain technology, this technology will improve the quality of financial reporting, and Iran should accept this technology. Although the respondents believe that this technology is useful for Iran and increases the quality of financial reporting, they have doubts that their work will be affected by blockchain technology. Today, there are two views about the impact of blockchain on auditing, some believe that with the emergence of blockchain in the field of business, the need to audit the financial statements of companies by auditors will disappear. They believe that the characteristics of immutability, irreversibility, greater transparency of events and placing all transactions and commercial exchanges in a controllable and traceable network route lead to this thinking. But the other group states that the use of blockchain in auditing only covers one of the important aspects of auditing the financial statements of companies, which is related to the evaluation of the accurate recording and recording of data and transactions, but other aspects of auditing, including data reliability, their targeting, their accuracy and provability are among other issues that this technology is not able to control and pay attention to, at least in the current conditions. Therefore, it can be concluded that the attitude of the members of the Iranian association of certified public accountants regarding the impact of blockchain on their work is close to the second group.

Also, in response to the second question, what are the obstacles to using blockchain technology in accounting systems from the point of view of the auditing profession? The results obtained from the structural equation model indicate that the areas of technology, law and auditing are the most important obstacles to the use of blockchain technology in accounting systems from the respondents' point of view, and the structural areas, education and human resources characteristics were placed in the next priority respectively. In other words, the inadequacy of hardware, software and related networks in most organizations, the lack of a suitable law for the implementation and implementation of audits based on distributed ledgers (for example: the lack of a law compatible with the change of post-transactional monitoring to real-time monitoring), the lack of appropriate standards for the implementation and implementation of audits based on distributed ledgers have been identified as the most effective obstacles from the perspective of the members of the Iranian association of certified public accountants. The results of this research are somewhat consistent with the results of a number of researchers. In their research, Borhani et al.(2021) introduced 20 indicators as the weaknesses of blockchain adoption based on the opinions of 35 experts, which are not appropriate to the current environment(nature of business and competitive environment), lack of wide acceptance of this technology, lack of regulations and The difficulty of legislation, the lack of sufficient validation controls, cyber attacks such as ransomware, phishing, malware and fileless attacks, the limited operational capacity, Limited storage capabilities, failure to detect wrong measurement, unavailability of necessary documents about the nature of transactions after acceptance into the blockchain, the possibility of data integrity being targeted by hackers, long development and implementation cycles, lack of transparency in The case of how smart contracts are, the high costs of adoption, implementation and maintenance, not being realistic in the short term, anonymity and irreversibility, and the inability to estimate the validity of transactions are the weaknesses of using blockchain technology in the field of accounting, auditing and financial reporting.

Other research also found the challenges of this technology to be the lack of skills and the need for training (Jakovljevic, 2022, Desplebin et al., 2021, Garanina et al., 2021, Silva et al., 2021 and Gregor and Carpenter, 2020), changing accounting techniques(Desplebin et al., 2021) and the absence of a clear and coherent legislative system and new audit standards(Elommal and Manita, 2021, Garanina et al., 2021 and Yu et al., 2019), concerns related to the integrity and security of data inputs, the auditor placing too much reliance on technology to the detriment of their professional development and exercise of professional judgement, the costs of technology implementation, disruptions to the status(Gregor and Carpenter, 2020).

5. Discussion and conclusion

Blockchain has advantages and features such as registration, sequencing and management of business transactions and company assets in accounting and auditing processes, which reduces the cost of various transactions(Liu et al., 2021). This emerging technology requires appropriate legal frameworks to

ensure legally binding transactions. In addition, multi-skilled teams, high investments and data analysis are needed to develop efficient blockchain ecosystems(Faccia et al. 2022). Therefore, in this space, the implication of companies is to increase capital and bring new investment to increase the innovation budget. In some countries, blockchain has been accepted for auditing as a practical matter, including at the national level(Kashanipour and Lotfi, 2019). The opportunities and challenges of audit firms facing private and public blockchains include things such as gathering evidence of verification and validation of transactions, assessing the compliance level of financial reporting transaction modification, planning and decision support consulting(Liu et al., 2019). To prepare for the changes resulting from this disruptive technology, audit professionals must adapt and upgrade their strategic role. At this stage, auditors should take the following initial steps to adapt to the new environment: acquire competence in blockchain technology and blockchain management, actively participate in blockchain development with a focus on risk control, conduct continuous auditing, and grow consulting activities.(Kazazi, 2021).

Professor Matsushima considers blockchain technology to be a double-edged sword. He believes that instead of fearing it, one should accept it and examine its various aspects. The use of blockchain in various fields can greatly affect jobs and how to meet people's needs in the future. On the other hand, for us currently, achieving such a technology is associated with many problems due to the existing limitations.

This research first seeks to determine the attitude towards the use of blockchain technology in accounting systems from the point of view of auditors. The findings show the acceptance of this technology and doubts about the impact of this technology on their work. Information about the attitude towards the use of blockchain technology for the audit profession can be useful. It seems that the results of the 4 attitude questions show expectations that blockchain should be accepted in Iran, but there is uncertainty about this change and acceptance because a large part of the respondents believe that the majority of their work is not affected by this technology. Therefore, it is suggested that the leaders of the auditing and accounting profession in Iran change their attitude by influencing their members and providing correct awareness about blockchain and the mentioned professions and holding training courses.

Then, the researcher has determined the role and importance of effective areas as obstacles to the use of blockchain technology in accounting systems from the perspective of the auditing profession. The most effective obstacles are the fields of technology, law and auditing, which should be given special attention. Therefore, managers can consider these factors in their macro-planning. Practical suggestions based on the research results, including the establishment and expansion of infrastructure systems, revision of rules and regulations and standards of accounting and auditing based on distributed ledgers, and holding training courses in order to acquire knowledge in the field of information technology and security knowledge and develop interdisciplinary skills and abilities.

In this research, the attitude of the auditing profession towards the use of blockchain technology in accounting systems and the identification of obstacles from the perspective of this profession were investigated. It is suggested to the future researchers to examine the research topic in other industries such as banking, insurance, etc.

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