

THE ROLE OF ARTIFICIAL INTELLIGENCE IN VOTING INSIDE JOINT-STOCK COMPANY MEETINGS

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ABSTRACT

The Unified Legal Committee has recently ended the need to develop a unified model law to regulate the circulation of cryptocurrencies for modern technology known as Blockchain. This study aims to inspect the e-voting influence on the shareholders and investigates Blockchain technology and its role in the electronic voting system according to Egyptian and UAE laws. Results showed in the text of Article (240) of the Regulations. They added in Articles of the Minister of Investment No. 16 of 2018 that the shareholder is permitted to vote on the decisions of the General Assembly remotely during the five working days preceding the meeting keeping the records clear and error-free. It was concluded that the shareholder could not be deprived of the right to vote except in the cases stipulated by law, especially when the judge does not have discretionary power.

Keywords: Egyptian Law, Laws of UAE, Blockchain technology, Shareholders, E-voting.

INTRODUCTION

In light of what the world is experiencing today, from the spread of epidemics and the resort to remote work and remote advertising, preventive measures are taken by all governments to prevent mixing and crowding to limit the spread of disease epidemics such as the emergence of COVID-19. Artificial intelligence is the best solution in such difficult times that the legal and economic world is searching for alternative legal solutions and changing legal concepts that have been ingrained in our minds for ages (Vaishya et al., 2020).

These technological systems and applications have become an integral and essential part of daily activities. They are used in the performance of many government services and activities through e-government, which has become one of the modern and advanced ways in which governments of countries deal with the use of modern technology to provide citizens with better, faster. Easier access to sources also allows the shareholders to participate in discovering various opinions and proposals. It constitutes the factors affecting the democratic transformation at the local and global levels (Stringer et al., 2006).

Commercial AI is always evolving. Communication technology and alien presence in business enterprises must be acknowledged, particularly during global problems (Xu et al., 2017). Electronic presence and virtual enterprises are present realities. Smart voting is one of the major foundations of electronic democracy, along with information systems and the Internet. We'll discuss electronic voting's conceptual underpinning (Racsko, 2019; Dunlavy, 2006).

The fast expansion of IT applications has created several current technologies, including blockchain technology, which has revolutionized economic notions (Figure1). Blockchain

technology will make a legal leap in contracts (civil and commercial) and develop new legal terms that the legal world did not know before, such as SMART CONTRACTS. At the same time, new legal problems will arise, such as the legal regulation of those networks, which results in the circulation of assets and funds, to provide adequate regulatory oversight without restricting new and innovative uses. Blockchain is a global technology; hence, international regulation of cryptocurrencies is vital. Next comes legislating smart voting over the (Blockchain) network. (Wang et al., 2019).

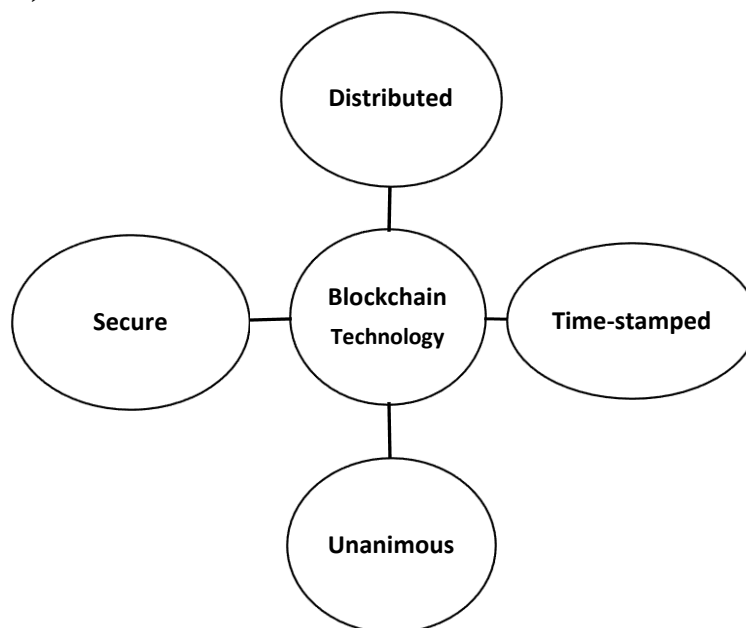


FIGURE 1
BLOCK CHAIN MODEL

Our topic is important because we must constantly monitor information technology and create legal answers to its difficulties in the legal arena. This will boost the company's management's efficiency and transparency, as well as the voting process's transparency. Smart voting saves time and money by reducing board meetings and general assemblies (Chiou et al., 2017).

Everyone will see Blockchain in smart voting in global companies soon, on land records and registration of deeds, blockchain platforms for electronic health records, student records in schools, and connecting all devices that support the Internet in smart cities that are approaching the future quickly. Since joint-stock companies are among the most important financial companies that dominate the current economic activity of countries and affect their entity and financial issues, it requires tight regulation of their management and control over their work. It limits their influence to combat aspects of administrative corruption (De-Mingo and Cerrillo-I-Martínez, 2018). It is the ideal model for money companies that are based on financial consideration and one of the most appropriate legal organizations capable of meeting the requirements of the current era because of its ability to accumulate capital and carry out important economic activities that legally affect the nature and basis of shareholders' rights. Perhaps the most important of which is the right to vote, which guarantees the shareholder effective participation in deciding the affairs of the company and making decisions related to it,

and accordingly, we divide the study on this topic to present the nature and method of voting using artificial intelligence via Blockchain technology, then we offer the legal challenges of vote using artificial intelligence through the technology of Blockchain.

METHODOLOGY

AR is used to view Blockchain voting. The ability to vote is the best way for a shareholder to voice their opinion at general assembly sessions. It is the company's highest authority. All stockholders participate in the company's management, work, and system changes. The voting right is related to a share of ownership, which originates from the right to attend General Assembly meetings. The voting right may only be gained and used at a shareholders' meeting (Kshetri and Voas, 2018). We cannot deprive shareholders of public order. Hence, we provide electronic voting using blockchain technology.

Informing the Plan through the Blockchain Technology

The shareholder has the right to know the plan's content in advance so they may prepare for the discussion. The shareholder might also question board members about the reports. The lawmaker allowed shareholders to build the General Assembly agenda and add things they deemed important to discuss and vote on utilizing Blockchain technology in the firm's computerized voting procedure. All conference agendas and materials are prepared using Blockchain. Blockchain reveals shareholder documents and plans (Foth, 2017).

The Assembly's agenda must be posted on Blockchain before the meeting. It guarantees shareholders since the discussions concentrate on their problems, so they know what will be debated and voted on. It is also a guarantee that the Board of Directors will not surprise them with a discussion. Blockchain technology was not included in the agendas, resulting in a lack of time to debate and answer questions about it. The concerns covered in the plans were made as plain as possible and free of ambiguity to organize the work of the General Assembly (Abbas et al., 2020).

To safeguard its competence, the lawmaker may only discuss items specified on the agenda. The plan may not be amended by deletion or addition, even if the meeting is postponed owing to a lack of quorum. As an exception, the General Assembly may deliberate on serious facts revealed during the conference, even if they are not on the agenda. In applying the theory of session accidents, this matter is no longer feasible if voting is through Blockchain technology, as it is listed on Agenda with enough time (Pournaras, 2020).

Assembling the General Assembly through Blockchain Technology

The absence of shareholders voting in the General Assembly makes electronic voting difficult due to the fear of losing the opportunity and abandoning several basic rights granted to them by the legislator, such as the right to attend the assemblies, the right to vote, and not only that, but electronic voting provides an opportunity for those in charge of the company's management to inform shareholders of the dates of the assemblies, and to invite them personally (Regulation, 2018). Whether electronic or conventional, the shareholder's right to vote is based on proportionality or not paying the entire amount of cash shares. Shareholders must vote at general meetings (Warkentin and Orgeron, 2020).

If the shareholder's decision benefits him or conflicts with the business, he loses his ability to vote. A legal person obtains legal individuality that permits him to enjoy all rights, except human rights. Because he lacks materiality, he must assign his rights to one or more natural people to represent him. After the General Assembly was called and a quorum was obtained, the subjects on the agenda for shareholder debate were presented, followed by the shareholders' comments. When voting and resolutions are issued, each share is matched by a vote unless the shareholder breaches his commitments, such as competing with shareholder interests or not completing all of his cash shares. Through Blockchain's transparency and reliability, shareholders may vote on ordinary or extraordinary topics and make educated investment choices (Lafarre and Van-der-Elst, 2018).

A shareholder not on the board of directors may not delegate another board member to vote on his behalf with integrity and without conflict of interest. Because a shareholder's proxy for another shareholder carries the status of a board member, it does not meet the required scope (Armour et al., 2017). The shareholder shall either have actual participation in the management of the company by being elected to the board of directors or by exercising control over the direction of the company by participating in the meetings of the General Assembly on the decisions taken and since the nature of the shareholder's participation differs of his involvement in the General Assembly, where his work in the Board of Directors (Forcadell, 2005).

Each shareholder is allowed to use in voting; the principle is that they are proportional to the number of shares owned by each shareholder, meaning that each share has one vote; in the application of the principle of equality between shareholders, so the shareholder has several ballots equal to the number of shares he holds, however, there is no objection deciding privileges for some types of claims so that their owners have more votes than they are, and these shares are preferred shares. The Egyptian lawmaker authorized cumulative voting in the company's articles of association by allowing each shareholder many votes according to the number of shares he holds. A shareholder may vote for one or more nominees. The vote counter must record the proportion of shares each shareholder allocates to each candidate in the Assembly's minutes (Fawzy, 2003).

RESULT AND DISCUSSION

The Egyptian legislator required the electronic system for remote voting for the meetings of the General Assembly, enabling the shareholder to express his opinion on the issues presented to the Assembly without committing to attend its meetings during the five working days preceding the holding of the General Assembly while ensuring the eligibility of the shareholder to vote (Fawzy, 2003). It was noted that the legislator granted the shareholder another opportunity to re-vote on the Assembly's decisions on the day of its meeting with the cancellation of the result of his previous vote.

It was also noted that these new provisions and controls in the field of cumulative voting on decisions of the General Assembly by electronic methods and remote vote are specific to decisions related to the election of members of the Board of Directors and the need to stipulate them in the company's articles of association. This is in addition to the fact that remote voting for a company whose shares are registered in the central depository and entry system may be used in the ordinary and extraordinary meetings of the Assembly (Puiggali and Morales-Rocha, 2007).

While the UAE Securities and Commodities Authority Resolution No. 3 of 2020 regarding amending the principles of corporate governance and adding the possibility of electronic voting for companies in the meetings of the General Assembly, provided that it includes taking into account the provisions of Article (185) of the Companies Law No. 32 of 2021, the shareholder may vote smart in the meetings of the General Assembly. The company is by the mechanism followed by the market in which the company's shares are listed and approved by the Authority. In this case, the following are required;

1. Signing a prior acknowledgment with the shareholder before the meeting with his written consent to follow the smart voting mechanism and to prove his attendance at the conference and his full knowledge of how to use this mechanism and the consequent limitation of his electronic vote to the items on the agenda of the General Assembly before the start of the meeting and his inability to discuss the agenda items or vote if new items are included in the plan of the General Assembly and that he complies with all the regulations issued by the market in this regard (Elfakharani, 2022).
2. The meeting chairman clarifies the number of shares participating in the meeting through smart voting and the attendance in the shareholders' register when announcing the completion of the quorum scheduled for the meeting. When voting on the decisions of the General Assembly, the vote collector shall indicate the number of votes participating through smart voting on each of the findings of the General Assembly and any other requirements determined by the Authority (Kisswani and Farah, 2022).

The company's articles of association usually determine the method of exercising the right to vote if this determination includes all shares without discrimination, one class from another. It will be via Blockchain technology. In the case of using Blockchain technology in electronic voting for the meetings of the general assemblies, the company creates its Blockchain network. Each shareholder is given his password, which he may not trade with any other shareholder. Accordingly, the company displays the agendas.

On the day of the meeting, each shareholder joins the network, which is a technical matter, and the code is tied to the use of a digital signature, where the person must input a number or password matched to a number or password. The signature is complete if the shareholder inputs the shared secret code, which is stored in advance. Several procedures are used to authenticate the signature, such as writing the customer's name. The shared secret is encrypted using a technology found in most network browsers. The encrypted data is communicated to all Blockchain network members to authenticate the process through an electronic fingerprint.

Suppose this matter is in the traditional voting in the meetings of the general Assembly. In that case, there is nothing to prevent it from a technical point of view from applying to smart poll via Blockchain technology. The shareholders' structure can be downloaded by programming it electronically to know the number of votes allowed to vote (Directors, 2020).

The shareholder must verify his ability to general assemblies, whether conventional or electronic, and this is simple. The authorities offer electronic certification certificates to prove online acts and supply the public key to validate the electronic transaction participant's identification using the shareholder's electronic signature. Smart voting may demand a shareholder's electronic signature so auditors can verify his identification. This is the electronic signature requirement. Authentication refers to the techniques, procedures, and processes used to authenticate the identity and legitimacy of new and current clients (Sharaf, 2021).

In the Egyptian Electronic Signature Law No. 15 of 2004, the Information Technology Industry Development Authority provided the most important authentication services provided by the authentication authority, which are:

1. Issuance of an electronic attestation certificate.
2. The result of examining the data for creating an electronic signature.
3. Electronic signature creation tools (smart card + reader).
4. Any other work related to regulating the electronic signature.

Verifying the identity of shareholders via Blockchain technology is very important, as no transaction can be enforced without it. It raises the physical non-attendance of shareholders, as voting is done through Blockchain technology using the internet, ensuring that smart vote is signed by it and attributed to it only, and applying the traditional authentication rules recognized in electronic transaction laws on the Blockchain technology. Blockchain technology stores electronic data using the electronic fingerprints of all network participants as the records are public (Wahab, 2020).

The Egyptian legislator defines an electronic signature as a form of letters, numbers, signs, or others written on an electronic editor so that the signer's identity can be determined without the help of others. This signature is attributed to its owner and considered consent to his commitment or an acknowledgment of what is below it. If the signs, letters, or other forms are inadequate to identify the issuer or lack a distinctive and special character, they are not acceptable as binding electronic signatures.

This new technology's encryption and electronic fingerprint impress us. Blockchain is a typical solution to this problem. The main criterion in choosing the appropriate technology or means to identify the contributor through Blockchain technology, whether selecting the password or digital signature or encryption or biological means or the like, solves the problem of accepting electronic means and acknowledging its authority in proof and eliminating doubts about its ability.

CONCLUSION

The company's articles of organization may stipulate the number of votes each shareholder has. If a shareholder does not have the requisite number of shares, he may join another class of shareholders to defend his interests in the Assembly. Nothing prevents a shareholder from entering a class of shareholders to satisfy the minimum criteria under the company's articles of association, but electronic voting using Blockchain technology makes it impossible.

Although the shareholder's right to vote on decisions is one of his basic rights, he is prevented from voting on his behalf or behalf of his representative in matters related to a personal benefit or a dispute between him and the company. This creates a conflict of interest when the shareholder or manager must choose between his and the company's interests.

Future Perspectives

The research advises employing this technology in smart voting through Blockchain to preserve voting data, whether on decisions of general assemblies or boards of directors, to

prohibit alteration, and to verify the integrity of voting on the agenda published electronically via the Blockchain network. Each contributor votes on the agenda items posted on the Blockchain. To limit the manipulation of the voting results, the voting procedure uses data encryption technology, resulting in an electronic fingerprint confirmed by all the Blockchain network contributors. Any change in the vote results involves modifying the shareholders' electronic fingerprints and the certifying body.

The statute governs General Assembly voting. If the legislation does not stipulate, it must be done as recommended by the meeting's president and accepted by the Assembly, provided that the legislator enforces a specified form of voting, the secret ballot, if the decision involves the election of members. The board of directors, dismissing them or launching a liability action against them, or if asked by the chairman of the board of directors, the managing partner, or partners, represents at least one-tenth of the votes present in the meeting.

The provisions on how to exercise the right to vote in legislation aim to ensure freedom of voting and remove embarrassment from one or more shareholders for any reason as if the decision required to be voted on involves a personal relationship with the shareholder that affects his freedom to vote on the decision.

The traditional smart vote allows to ensure the confidentiality of the information included in the voting process so that only those who have sent it to him through the sender's public key can read this information and protect the data against illegal use or, in other words, determine the powers of access to the data and determine the responsibility of each user of this data and not allow Shareholders with a conflict of interest to access this data. The smart vote that uses Blockchain technology may lack this functionality, resulting in an electronic fingerprint confirmed by all shareholders, as the data are public and accessible to all shareholders.

Accordingly, it is not feasible to vote secretly with Blockchain technology (since it is based on transparency and may violate the law). Still, it is possible to prevent Messrs. Shareholders of board members avoid using their usernames while voting to remove the board or when absent from the voting process since Blockchain technology is built on openness and transparency, which may clash with secrecy, but it did not. The challenge to activating electronic voting with Blockchain technology is easing the voting procedure for small shareholders, auditing auditors' attendance, and voting rates electronically and automatically.

It is impossible to vote secretly with Blockchain technology (since it is based on transparency and may violate the law). Still, shareholders of board members can avoid using their usernames when voting to remove the board or when absent from the voting process. Blockchain technology is built on openness and transparency, which may clash with secrecy, but it does not. Easing small shareholders' voting process and checking auditors' attendance and voting rates electronically and automatically are challenges for Blockchain-based electronic voting.

Blockchain is an encrypted technology. That is, the basic innovation on which the Blockchain system is based is cryptography, which solves important technical problems for the first time. The Egyptian legislator defined the electronic signature in Paragraph (c) of Article (1) of the Electronic Signature Regulation Law No. 15 of 2004 as: *"Everything that is placed on an electronic document and takes the form of letters, numbers, symbols, signs, or others, and has a unique character that can be It determines the personality of the site and distinguishes it from others."* Thus, it depends on the form that the electronic signature takes and the functions it performs.

In Orford voting to take place through the Blockchain technology, this requires the shareholder to enter the company's Blockchain network to start voting on the agenda announced on the web and vote for each of the announced items separately and so on, and here the concerning the Egyptian Electronic Signature Law in Article 14 of Law No. 15 of 2004: "Electronic signature, within the scope of civil, commercial and administrative transactions, has the same authority as signatures in the provisions of the Evidence Law in civil and commercial matters, if the conditions stipulated in this The law and the technical and technical controls determined by the executive regulations of this law.

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The UAE legislator has granted the electronic signature the same authenticity as traditional signatures with the signature or thumbprint contained in the UAE Trade Law No. 18 of 1993 and the provisions of Federal Law No. 36 of 2006 regarding the amendment of some provisions of the Evidence Law in Civil and Commercial Transactions issued by Federal Law No. (10) for the year 1992 AD, its second article states, *"an electronic signature has the same authenticity as the signatures referred to in this law if the provisions established in the Electronic Transactions and Commerce Law are taken into consideration (2006)."*

It is worth noting that the UAE legislator has explicitly stipulated in Article (13) of Federal Law No. 5 of 2017 regarding the use of remote communication technology in criminal procedures and published on May 30, 2017, which stated, *"The electronic signature shall have the same authenticity as the signatures mentioned above."* In the Federal Penal Procedures Law, if the provisions prescribed in the Electronic Transactions and Commerce Law are taken into consideration. It is also worth saying that the proof of electronic voting through blockchain technology is the freedom of evidence by introducing some specific defense methods.

Article (13) of Federal Law No. 5 of 2017 prescribes the use of remote communication technologies in criminal processes. Thus, national and international law has granted electronic papers the same legal weight as conventional documents without requiring a specific order. In writing, Egyptian and Emirati lawmakers supported this tendency, demanding that they must fulfill the Electronic Transactions Law's technological standards to obtain legitimate electronic evidence papers.

The electronic signature, owing to its features, assures non-repudiation of electronic voting results using Blockchain technology by protesters. The Blockchain (the user of the electronic signature with cryptography) refuses to deny the attribution of the signature to it due to the complete link between the public key, the privacy of the shareholder, and the presence of a third party (certified by all Blockchain network parties) allows verification. In this instance, refuting the electronic signature's legitimacy and ownership is tough. Since the authenticity of Blockchain-based electronic voting results may be established in numerous ways, each provides some guarantee of the results' integrity.

In addition, protect it, and that the shareholder's denial of what he issued in the voting process is not expected through Blockchain technology, where the legal identity of the shareholders can be known and matched with the data previously registered about him before he

makes the electronic signature, and if the means of comparing it varies. For many, using the secret code is the most important of these means.

This code and its technical rules are a technical matter, and the code is attached to the use of a digital signature, where the person is required to enter a number or password that is matched to a previously stored number or password, called the shared secret, which the person and the service provider share. If the signature matches, the secret code is accompanied by several procedures to document the signature, such as writing the signature on paper.

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