

Research on the legal regulation and practical pathways for electronic shareholder meetings in the context of digital transformation

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Abstract. The rapid development of information technologies such as big data and blockchain has created the technical conditions for electronic shareholder meetings. Compared with traditional offline meetings, electronic shareholder meetings offer distinct advantages in terms of cost savings, efficiency improvements, and expanded shareholder participation. However, challenges remain in legal regulation and practical implementation, including concerns regarding information security and the constraints imposed by traditional concepts. This article, using comparative analysis and case studies, systematically examines the institutional designs and practical experience of electronic shareholder meetings across representative jurisdictions, including the United States, the European Union, and Singapore, and highlights their implications for China. This article further explores the necessity and practical obstacles facing electronic shareholder meetings in China and proposes specific recommendations, including strengthening shareholder rights protection and remedy mechanisms and promoting institutional development. This research demonstrates that electronic shareholder meetings are an inevitable step for modernizing corporate governance, thereby promoting the digitalization and internationalization of corporate governance in China.

Keywords: digital transformation, electronic shareholder meetings, digital corporate governance

1. Introduction

Currently, emerging technologies such as big data, blockchain, and artificial intelligence are playing a central role in companies' digital transformation. In this process, traditional in-person shareholder meetings, a core component of corporate governance, are increasingly confronted with problems such as high organizational costs, limited deliberation efficiency, low levels of shareholder participation, and ineffective transmission of information transmission. These challenges are particularly acute in companies with diverse shareholding structures or shareholders with widespread geographical distribution.

Electronic meeting platforms enable shareholders to effectively participate in meetings and exercise their voting rights remotely, effectively overcoming geographical restrictions and improving accessibility. Real-time information disclosure also helps enhance the openness and transparency of the meeting process. In recent years, many companies around the world have widely adopted purely online or hybrid online shareholder meetings, further driving these models adoption. Accordingly, the institutionalization of electronic shareholder meetings has become a key manifestation of the digitalization of corporate governance.

This study examines the legal regulation and practical pathways for electronic shareholder meetings in the context of digital transformation, using two research methods. First, a comparative analysis of legislative experience and institutional design for electronic shareholder meetings in the United States, the European Union, and Singapore, identifying common features and development trends, and providing a reference for the development of relevant systems in my country. Second, case analysis of typical domestic listed companies that have implemented electronic shareholder meetings, assessing operational models, legal and practical obstacles, and strategies for optimization. Theoretically, the study deepens the the intersection of corporate law and digital technology, expanding the scope of corporate governance theory in the context of digitalization. In practice, the research findings can serve as a reference for the design and operational implementation of electronic meetings in companies.

2. Literature review

2.1. International research landscape

Research on electronic shareholders' meetings began relatively early outside China. Brochet et al., using large-sample empirical data, found that the adoption of Virtual Shareholder Meetings (VSMs) is significantly more common in technology-intensive firms and those focused on investor relations, highlighting their advantages [1]. Schwartz-Ziv, however, noted that while digital meetings broaden participation, they may weaken the voice and accountability of minority shareholders, potentially leading to "ceremonial participation" [2]. Zetzsche et al., in a comparative study, pointed out that EU member states still face coordination challenges in areas such as privacy protection, data security, and cross-border certification [3]. At the same time, the European Union requires its members to ensure that shareholders can participate and vote electronically and has established a transnational framework for electronic identification and trust services, creating a technical and legal basis for electronic shareholder meetings [4, 5].

2.2. Domestic research landscape

Although research on electronic shareholders' meetings started later in China, the rise of the digital economy has spurred parallel progress in institutional and technological studies. Chang observed that as the number of minority shareholders grows and information technologies become more widespread, traditional in-person shareholders' meetings increasingly suffer from low participation and procedural inefficiencies [6]. Wei and Zhang further noted that blockchain innovation in China has entered a "quality optimization" phase, with AI algorithms and trust mechanisms accelerating their industrial application—providing a new technical foundation for digital meetings in identity authentication, voting security, and data traceability [7]. Meanwhile, Tang highlighted breakthroughs in secure transmission, video interaction, and trust mechanisms in electronic meeting technology, offering critical support for enterprise-level shareholder meeting systems [8]. Overall, domestic research is evolving from policy interpretation and institutional design toward theoretical refinement and technological integration, showing convergence with international trends.

In summary, much of the existing research focuses on single-country analyses, leaving a gap in multidimensional comparative studies of electronic shareholders' meetings across jurisdictions.

2.3. Theoretical basis and institutional overview

An electronic shareholders' meeting is a format in which a company uses information technology and online platforms to enable remote attendance, voting, and interaction among shareholders. Based on their organizational model, such meetings are generally categorized into two types: fully virtual meetings, which take place entirely online without a physical venue, and hybrid meetings, which combine an in-person gathering with remote digital participation.

The design of electronic shareholders' meetings should adhere to fundamental principles of corporate law. The principle of shareholder equality mandates that all shareholders, regardless of their shareholding size, enjoy equal rights to information, expression, and voting. The principle of minority shareholder protection aims to prevent controlling shareholders from using procedural tactics to limit effective participation and oversight by minority shareholders in digital meetings. The principles of good faith and procedural justice require companies to ensure transparency and fairness in all stages, including notice, disclosure of materials, identity verification, vote counting, and result announcements. Finally, the principle of functional equivalence requires that digital meetings produce equivalent effects to in-person meetings in protecting shareholder rights and achieving procedural outcomes, without diluting of rights due to technical differences.

3. The development of electronic shareholders' meetings in China

3.1. The need for electronic shareholders' meetings

The digital economy has emerged as a key driver of high-quality economic development in China. The digital transformation of shareholders' meetings aligns with the China's national "Digital China" and "Smart Justice" initiatives, helping improve the overall operational efficiency of capital markets. For companies, traditional in-person shareholder meetings often entail high costs, difficulties in cross-regional participation, and inefficiencies in information coordination. Electronic shareholder meetings can significantly reduce governance costs, enhance participation convenience, and improve the efficiency and transparency of decision-making. As corporate governance models worldwide rapidly digitize, digital shareholders' meetings are becoming common practice. If China falls behind in institutional development, it could impair the international competitiveness of its

capital markets and complicate cross-border investment and financing. Promoting digital shareholders' meetings is both urgent and of long-term strategic value for both corporate needs and national goals.

3.2. Existing foundations for digital shareholders' meetings in China

China has already established some legal and technical foundations for digital shareholders' meetings. The newly amended Company Law of the People's Republic of China (2023) strengthens principles of information disclosure and shareholder rights protection, providing a legal basis for recognizing and validating digital shareholders' meetings. Regulatory bodies such as the China Securities Regulatory Commission (CSRC) and the Shanghai and Shenzhen stock exchanges have also issued practical guidance encouraging listed companies to explore remote voting and online meeting models [9, 10].

Technologically, advances in 5G, big data, and blockchain provide strong support for secure, efficient, and transparent digital meetings. According to a 2023 Shanghai Stock Exchange report, some listed companies have successfully conducted annual shareholders' meetings online using 5G networks, enabling smooth access for a large proportion of shareholders without noticeable delays [11]. Big data technologies, enables real-time risk identification algorithms, allow dynamic monitoring of abnormal voting behavior. Reports from the China Securities Depository and Clearing Corporation Limited show that such technologies have significantly improved the detection rate of anomalous votes in online meetings, reducing operational risks [12]. In addition, blockchain technology, with its features of immutability and traceability, has been applied to voting record storage. Research shows that integrating blockchain into voting systems allows entire voting records to be stored on-chain, ensuring verifiability and credibility of results. These measures have laid a legislative consolidation and regulatory refinement to ensure enforceability and scalability.

3.3. Core challenges for electronic shareholders' meetings

3.3.1. Unclear legal status and insufficient institutionalization

While Chinese law tentatively recognizes electronic shareholders' meetings, relevant provisions remain fragmented. Most regulations are dispersed across self-regulatory rules, stock exchange guidelines, and corporate bylaws, lacking unified, high-level legislation and detailed procedural rules. This makes it difficult to determine the legal status of digital meetings, the evidentiary value of resolutions, and the available remedies in the event of disputes. For example, the Industrial and Commercial Bank of China's 2023 annual shareholders' meeting still used a "combined in-person and online voting" approach, with specific online voting procedures detailed in the company's announcement [13]. Thereby giving rise to uncertainties in procedural validity, evidentiary reliability of resolutions, and the scope of shareholder remedies under existing corporate law.

3.3.2. Persistent technical and security risks

While electronic meetings improve convenience, they also introduce risks such as identity spoofing, duplicate voting, data tampering, and information leakage. Current meeting platforms still lack adequate, consistent technical standards, third-party audit mechanisms, and independent oversight. According to stock exchange rules and online voting platform regulations, online voting data must be merged with on-site votes, with exchanges or designated systems responsible for aggregation [9]. Although this reflects technical feasibility, it also underscores the need for stronger security standards and independent oversight.

3.3.3. Limited effectiveness of shareholder participation

Electronic shareholder meetings lower the barrier to entry and increase participation rates, but often fall short in real-time interactivity and oversight. Many online meetings fail to provide real-time interaction, responsive Q&A, and effective shareholder monitoring. For instance, although Alibaba's 2020 online shareholders' meeting allowed remote viewing and information disclosure via a video platform, subsequent academic and market analysis showed that interaction records for minority shareholders and the transparency of Q&A responses needed improvement [14]. This suggests a gap between the formal accessibility of participation and its genuine effectiveness. Enhancing minority shareholders' influence requires more thoughtful platform design, Q&A processes, and procedural transparency.

3.3.4. Traditional mindsets and trust-related barriers

Some shareholders, managers, and intermediaries remain skeptical about the legal validity, voting security, and data privacy of electronic shareholders' meetings. As a result, many companies adopt a conservative hybrid format. In response, exchanges and regulators have introduced measures such as online voting reminders and process optimizations to boost participation and trust

among minority investors [10]. However, broader adoption will require more comprehensive statutory safeguards and targeted public legal education to address these concerns and promote the acceptance of digital meetings.

4. Comparative analysis of electronic shareholder meeting frameworks

4.1. United States

As an early adopter of electronic shareholders' meetings, the United States adopts a federal-level guidance alongside state-level legislative autonomy. State corporate laws vary, thereby offering flexibility. Although not legally binding, the SEC's 2020 Guidance on Virtual Shareholders' Meetings outlines standards for key aspects such as notice, identity verification, vote traceability, and disclosure, which reflects a focus on aligning technology and regulation to protect shareholders and improve market efficiency [15]. The U.S. experience in identity authentication, vote tracking, and implementation of interactive rights offers valuable insights for China.

4.2. European Union

The EU's regulatory model emphasizes data compliance and equal rights. The Shareholders' Rights Directive (Directive 2017/1132) requires member states to allow electronic participation and voting, though implementation details are determined nationally [4]. Technically, the eIDAS Regulation provides a cross-border framework for electronic identification and trust services [5]. The General Data Protection Regulation (GDPR) imposes strict requirements on data collection, use, and storage during meetings. The EU also emphasizes that digital platforms must enable access to information access and discussion of topics to ensure equal exercise of shareholder rights. This offers important lessons for China in strengthening data compliance and privacy protection in digital meeting systems.

4.3. Singapore

Singapore exemplifies a regulatory model centered on exchange rules. The Singapore Exchange (SGX) Guide to Remote Shareholders' Meetings sets clear requirements for companies, including providing clear participation instructions, multilingual support, and a feedback channel for objections available within seven days after a meeting. Singapore's approach emphasizes practical implementation and robust redress mechanisms, offering a useful example for China in improving participation convenience and rights protection.

4.4. Comparative insights

The jurisdictions studied generally recognize electronic shareholders' meetings as legally valid and are moving toward institutionalization and normalization. Each emphasizes functional equivalence—requiring digital meetings to provide the same rights and effects as in-person meetings in notice, voting, and disclosure. Also stress technical security measures, such as identity authentication, data encryption, and independent vote counting.

However, the U.S. prioritizes regulatory flexibility and market efficiency, the EU focuses on data privacy and cross-border compliance, and Singapore highlights practical implementation and minority shareholder experience. Each offers distinct insights for China's development of digital meeting frameworks.

5. Future directions

Building on national conditions and international experience, future efforts should focus on institutional, technical, and participatory dimensions.

5.1. Institutional development

Laws and regulations should explicitly define the legal status of digital shareholders' meetings. Regulatory authorities such as the CSRC and stock exchanges should issue more detailed guidelines, industry standards, and Q&As to help companies implement digital meetings. Learning from domestic and foreign case law and regulatory practice will help establish a mature, stable regulatory framework over time.

5.2. Technology application

China should consider establishing unified identity authentication and security standards, drawing on frameworks such as the EU's eIDAS Regulation. Advanced technologies, including strong authentication, end-to-end encryption, and blockchain-based record keeping, should be promoted to enhance security and transparency. Pilots and industry collaboration can support the development of high-level, interoperable technical standards.

5.3. Protecting shareholder rights

Drawing from Singapore's regulatory model, China should strengthen safeguards for minority shareholders, ensuring their equal participation and effective oversight. The rights to object, vote, and seek remedy should be clearly defined and protected through enforceable procedures. Introducing independent third-party supervision or audits of voting processes could enhance procedural fairness and the credibility of meeting outcomes.

5.4. Promotion and implementation

Platform functions should be continuously upgraded to support real-time Q&A, video statements, and online feedback, thereby reinforcing shareholder engagement and participatory governance. Targeted legal training and public communication initiatives can help investors and corporate managers understand digital processes and rights protection, fostering acceptance of digital meetings as a new norm in corporate governance.

6. Conclusion

Overall, electronic shareholder meetings are a key direction for digital corporate governance. The promotion of such meetings not only reduces transaction costs in shareholder decision-making, expands shareholder participation and improves transparency and procedural fairness. While China already has a preliminary foundation in terms of digital technology and legal systems, deficiencies remain in legal positioning, technological security, shareholder rights protection, and the transformation of traditional concepts. By examining typical regulatory models in jurisdictions such as the United States, the European Union, and Singapore, this paper suggests diverse approaches that balance efficiency, compliance, and shareholder protection. While improving the legal system and supporting regulations, actively promote the establishment of unified platforms and technical standards, and further strengthen the protection of minority shareholders' rights to enhance the credibility and practical feasibility of the system.

This study has several limitations. For example, the case analysis focuses primarily on listed companies. The exploration of legal conflicts and coordination issues arising from cross-border electronic meetings is also insufficiently detailed. Future research can further explore the in-depth integration of new technologies and company law, while also focusing on the adaptation and coordination of cross-border electronic meetings across different jurisdictions, thereby providing more forward-looking theoretical support and practical paths for the internationalization and digital transformation of corporate governance.

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