

## WAYS OF USING DIGITAL TECHNOLOGIES IN CORPORATE MANAGEMENT OF JOINT-STOCK COMPANIES

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**Abstract.** The digital transformation of corporate governance has emerged as a pivotal trend in enhancing the efficiency, transparency, and strategic agility of joint-stock companies. This paper explores the multifaceted ways in which digital technologies are being utilized in the corporate management of joint-stock companies, with a focus on governance practices, decision-making processes, stakeholder communication, and performance monitoring. The study analyzes how tools such as enterprise resource planning (ERP) systems, blockchain, artificial intelligence (AI), cloud computing, and big data analytics are reshaping managerial functions and enabling real-time data-driven decision-making. Emphasis is placed on the role of digital platforms in improving corporate reporting, facilitating shareholder engagement, and ensuring regulatory compliance. The paper also highlights the challenges and risks associated with digital integration, including cybersecurity concerns, resistance to change, and the digital skills gap. Drawing on case studies and empirical findings, the research proposes a framework for effective digital governance tailored to the needs of joint-stock companies operating in dynamic economic environments. The findings underscore the strategic importance of digital maturity in achieving sustainable corporate performance and fostering long-term value creation.

**Keywords:** corporate governance, owners, digital technologies, investors, stakeholders, decision, artificial intelligence.

### **1.Introduction**

Within the framework of the reforms being implemented in New Uzbekistan, large-scale measures are being taken to improve the activities of joint-stock companies, including their institutional and functional mechanisms. In particular, the tasks of "In order to increase financial resources in the economy, increasing the turnover of the stock market from 200 million US dollars to 7 billion US dollars in the next 5 years, and gradually liberalizing the movement of capital" have been defined. [1]



Based on this, a scientific and methodological basis aimed at further improving the regulatory framework in the implementation of corporate governance in joint-stock companies, reducing state participation, accelerating decision-making processes through information and communication technologies, artificial intelligence, automated information systems, and digital data processing tools, increasing the transparency of management processes, effectively organizing interaction between stakeholders, and proposing modern management practices that ensure the achievement of the strategic goals of the organization, ensuring the independence of the management bodies of joint-stock companies and their free movement on the stock market, ensuring the activities of joint-stock boards based on digital platforms, making decisions based on transparent and market principles, increasing the effectiveness of executive bodies in joint-stock companies, and assessing the effectiveness of supervisory boards has been developed further deepening of scientific research in the areas of fundamental development is of great importance. Scientific and theoretical aspects of research on improving the efficiency of corporate governance are a research area of many foreign scientists.

## **2.Literature review**

Scientists from the Commonwealth of Independent States S. Kukura, I. Ansof, O. Kavirshina, V. Mikhailov, I. Khrabrova, N. Trofimova, T. Salyutina, G. Platunina conducted research on improving the organizational and economic mechanisms of corporate governance. In the scientific works of these scientists, scientific recommendations are given on improving the corporate governance system and increasing its effectiveness. In these works, the issues of implementing digital platforms in corporate governance have not been sufficiently studied.

General aspects of improving corporate governance in joint-stock companies in Uzbekistan are highlighted in the research of B.B. Berkinov, B.Yu. Khodiev, M.B. Khamidulin, D.Kh. Suyunov, M.M. Vokhidov, S.S. Gulyamov, Sh.N. Zaynutdinov, D.N. Rakhimova, R.Kh. Karlibaeva, N.M. Rasulov, D.Kh. Suyunov, M.B. Khamidulin, Z.A. Ashurov, A.A. Khoshimov, R. Yaushev, S.E. Elmirzaev, B.N. Urinov, M.G. Umarhodzhaeva, A.K. Shermukhamedov, M.Sh. Kayumova, and other scientists. Despite the scale of scientific research conducted in this area, the choice of the topic of improving, analyzing, and effectively organizing the corporate governance system in joint-stock companies in the chemical industry industry has not been studied.

## **3. Methodology.**

In the research process, methods of analysis and synthesis, induction and deduction, comparison and contrast, hypothesis and proof, systemic, economic, statistical and other modern methods of scientific knowledge, questionnaires, and factor analysis were used.

#### **4. Analysis and results.**

Technological progress and the radical growth of the digital economy have thus transformed the structure of companies, capital markets, and the global economy. Digital technologies are fundamentally changing corporate governance in modern companies. Today, technologies such as artificial intelligence (AI), blockchain, big data analysis (Big Data), the Internet of Things (IoT), and cloud computing have a profound impact on the management processes of companies. These technologies play an important role in increasing the efficiency of corporate governance, ensuring transparency, and risk management.

AI technologies are widely used in the automation and optimization of decision-making processes in corporate governance. With AI-based analytical tools, companies quickly and accurately analyze large amounts of data and use them to make strategic decisions. For example, Ponick and Wieczorek studied the potential of AI technologies in corporate governance, risk and compliance (GRC) areas in their research and emphasized the importance of AI in the effective management of GRC processes.[1]

Blockchain technology plays an important role in ensuring transparency and accountability in corporate governance. With the help of this technology, companies can record their operations precisely and unchangingly. In his article, the foreign researcher Ivaninsky analyzed the possibilities of blockchain technology in solving agent-principal problems in corporate governance.

Big data analysis helps companies deeply analyze information about their activities and make strategic decisions. In their research, Zhou and Liu demonstrated how companies can effectively manage their management processes through big data analysis.[3]

Through the Internet of Things market, i.e., IoT technologies, companies will have the opportunity to monitor and manage their equipment and processes in real time. These technologies are important for increasing operational efficiency and reducing risks in corporate governance.[4]

Cloud computing technologies provide companies with high efficiency in data storage and processing. With these technologies, companies can safely and efficiently manage their data.[5] Companies face a number of problems when implementing digital technologies in corporate governance. To solve these problems, the following solutions are proposed:

1. Ensuring data security and confidentiality. When implementing digital technologies, ensuring data security and confidentiality is of great importance. Companies need to develop and implement cybersecurity strategies.

2. Compliance with the requirements of legislation and regulators. When implementing digital technologies, it is important to comply with the requirements of local and international legislation. Companies should work in cooperation with regulatory bodies.

3. Continuous improvement of the qualifications and knowledge of employees. For the effective implementation of digital technologies, the qualifications and knowledge of employees are of great importance. Companies need to continuously train and develop their employees.







4. Organizational culture and readiness for change. When implementing digital technologies, organizational culture and readiness for change are important. Companies need to adapt their organizational culture to digital transformation.[6]

The first type of technology used by regulatory bodies is securities and financial markets or SupTech technologies. SupTech (Supervisory Technology) is a complex of digital technologies that serves to digitalize and automate the activities of financial control and supervision bodies (regulators). Its main goal is to effectively, quickly, and transparently implement the processes of controlling financial institutions.

In the OECD's analytical report, SupTech technologies are highlighted as an important tool for implementing the G20/OECD corporate governance principles. Through them, regulatory bodies will be able to quickly and efficiently analyze data and identify risks in advance.[7] According to the FSB report, SupTech technologies help regulators assess, monitor, and implement real-time risk assessments and policies. These technologies can automate control processes and improve data quality.[8]

Analysis of BIS shows that credit, market, liquidity and operational risks can be assessed through SupTech tools, as well as capital adequacy and management efficiency can be ensured.[9] SupTech technologies play an important role in ensuring transparency in corporate governance, early risk identification, and effective implementation of control processes. Their application can enhance the effectiveness of corporate governance and ensure financial stability.[10]

**FIGURE 4.**  
**SUPTECH GENERATIONS 2.0 (CAMBRIDGE SUPTECH LAB 2022)**

	OG MANUAL	1G MINIMAL TECH	2G DIGITALLY TRANSFORMED	3G ADVANCED TECH	4G BIG DATA & AI
 DATA PRODUCTS	Minimal statistical summaries	Static report generation	Automated dashboards	Dynamic and interactive visualizations	AI-augmented business intelligence tools
 ANALYTICS	No additional analysis	Manual analysis only	Descriptive/Diagnostic Analytics tools	Predictive analytics tools	Prescriptive analytics tools
 ACCESS CONTROLS	Individual access only	Team access only	Department access only	Limited agency-wide access	Agency-wide access
 STORAGE	Physical media	Centralized file-based storage	On-Premise Relational Databases	Cloud computing Database systems	Big Data tools
 VALIDATION + PROCESSING	Manual or no validation rules after receipt of data	Automated validation errors and warnings integrated into data submission process	Static Task Automation	Robotic Process Automation (RPA)	Advanced Data Processing
 COLLECTION	Manually Submitted	Web portal or File Server	Push API	Pull API or Data Commons	AI-based collection or alternative data sources

Thus, with a sharp increase in volume and frequency, the need for architectures capable of collecting, storing, and analyzing structured and unstructured data, as well as visualizing such data forms, is also increasing.

Characterized by a number of characteristic features (volume, variety, speed, and availability), large volumes of data offer companies potentially complex tasks for managing them, which helps to focus on advanced data processing technologies and technologies that provide complex analytics.

SupTech solutions are developing in parallel with technological solutions to innovations. As a result, it is possible to break down the descriptive, diagnostic, predictive, and imperative concepts of SupTech technologies in accordance with successive technological generations.

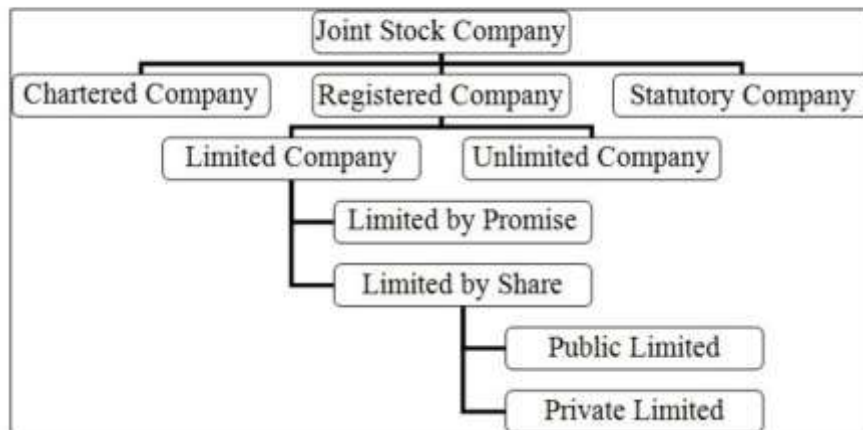
SupTech solutions are being actively implemented in many jurisdictions. For example, regarding the practice of disclosure of information, since 2017, the Malaysian Securities Commission has been one of the companies. Standard Model of the Corporate Governance Code. Subsequently, the report will be analyzed by the AI system for compliance assessment. In addition, the Australian Securities and Investment Commission has developed a platform for tracking primary and secondary trading.

In world practice, there are various digital management platforms, which are developed depending on the needs of organizations of different sizes and industries. Their main tasks are to automate document flow, electronic voting, compliance monitoring, agenda formation, secure file exchange, meeting minutes, and other similar council activities.

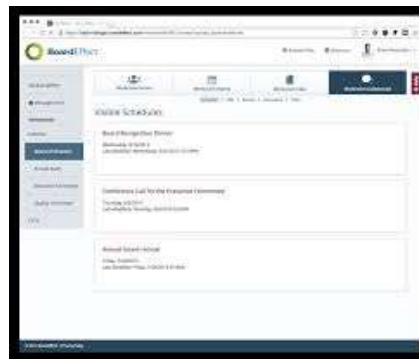




## Types of Join Stock Company



On the other hand, BoardEffect is known as a suitable platform for educational institutions and non-profit organizations. It provides opportunities for agenda preparation, report submission, and compliance control. However, it is not sufficiently adapted for industrial and manufacturing sectors. The Board Intelligence platform is also known for its low adaptability to the technical and industrial sectors, although it performs intelligent agendas and decision analysis.



The process of implementing the platform in the digitalization of corporate governance processes should be carried out effectively and systematically. This process should first begin with an analysis of the existing management system of the enterprise. Problems such as shortcomings in processes, paperwork, delays, or ineffective data flow will be identified, and areas that can be automated through the digital platform will be identified. At the next stage, based on these needs, it is necessary to choose a digital platform suitable for the activities of the enterprise. The selection takes into account such aspects as the platform's functionality, security level, integration capabilities, customer support, and pricing policy.

Table 1

**Advantages and disadvantages of digital platforms used in corporate governance systems**

<b>№</b>	<b>Platform Name</b>	<b>Advantages</b>	<b>Disadvantages</b>
1	<b>Diligent Boards</b>	- Applied in 25,000+ organizations - Secure document exchange - Electronic voting - Risk and compliance monitoring	- High pricing policy - Can be burdensome for small organizations
2	<b>BoardEffect</b>	- For NGOs and educational institutions - Preparation of the agenda - Submission of reports - Compliance control	- Functionally limited for manufacturing enterprises - Low level of adaptation to the activities of the Council
3	<b>OnBoard</b>	- Intuitive interface - Interactive agenda - Electronic voting - Mobile applications	- Limited adaptation to the Board's activities - Limited risk and compliance functions
4	<b>Nasdaq Boardvantage</b>	- Secure document management - Electronic voting and confirmations - AI-based reports - Zoom and Teams integration - Security: AES 256-bit encryption, 2FA, ISO 27001 certification - Mobile applications - 24/7 customer support	- Expensive pricing policy - Outlook calendar integration is limited - Some browsers can run slowly - Re-login is required when using in many companies
5	<b>Admincontrol</b>	- GDPR and ISO27001 certificates - Electronic signature and verification system - Secure file sharing - Widely used in the European market	- Limited Zoom/Teams integration - Limited functionality in mobile apps
6	<b>Board Intelligence</b>	- Intellectual Agendas - Analysis of Decision Quality - Focus on the Quality of Written Reports	- Low level of adaptation for manufacturing and technical industries - Limited risk and compliance functions



7	<b>Govenda</b>	- Meeting management - Secure file management - Clear distribution of user rights - Remote voting	- Limited risk and compliance functions - Low level of adaptation to the Council's activities
8	<b>Azeus Convene</b>	- Interactive Agenda - Electronic Signatures and Compliance Audit - Data Encryption - Opportunity to work offline	- Limited adaptation to the Board's activities - Additional fees may be required for many functions
9	<b>iBabs</b>	- Convenient Agenda for Board Members - Decision Support Tools - Compliance and Audit Control Logs - Electronic Signature and Security Systems	- Zoom/Teams integration is restricted - Risk and compliance features are restricted
10	<b>BoardPaq</b>	- Simple dashboards for small organizations - Online/offline schedules - File upload and archiving options - Quick decision approvals	- Limited risk and compliance functions - Low level of adaptation to the Council's activities

The selected platform will be implemented for the first time as a pilot project within a small group. At this stage, it is assessed how the platform works, how employees perceive it, the presence of technical problems, and the level of effectiveness. If the test results are positive, the platform will be fully implemented. At the same time, it is important to organize special training courses so that employees can effectively use the platform. The ability of each department and management to fully utilize the capabilities of the digital platform determines the success of the implemented system.

After the implementation of the platform, it is necessary to regularly assess its operational effectiveness. Based on the results of this assessment, changes, functional expansions, or updates may be made if necessary. The goal is the continuous improvement of corporate governance processes and ensuring competitiveness.

For enterprises in the chemical industry, such factors as safety, compliance, document confidentiality, and compliance with regulatory requirements are paramount. Therefore, it is advisable to choose Nasdaq Boardvantage as a platform that meets the requirements specific to



this industry. It has a functionality that fully meets the high standards of this field. The platform has AES 256 bit encryption, two-stage authentication, and ISO 27001 security certificates, which allow for secure document storage, verification of their versions, and the implementation of electronic signatures.

There are features such as e-voting, approvals, and risk monitoring to ensure compliance. The platform will be integrated with Zoom and Microsoft Teams, which will ensure the effective organization of remote meetings. Through mobile applications, there is access to the platform from anywhere, and 24-hour technical support will help ensure uninterrupted work at all levels of the enterprise. These features make the Nasdaq Boardvantage platform an ideal solution for enterprises operating in the chemical industry.

Digital corporate governance platforms are of great importance in increasing corporate transparency, accelerating decision-making, and ensuring security. Light platforms like iBabs and BoardPaq are recommended for small businesses, Admincontrol or Azeus Convene for medium-sized enterprises, and Nasdaq Boardvantage and Diligent for large, strategic networks. Depending on the industry, resources, and technical infrastructure of the enterprise, the correctly chosen platform ensures the achievement of clear results through digitalization in corporate governance. The effective organization of corporate relations should be among the main strategically important issues of joint-stock companies. Just as JSC "Uzkimyosanoat" has its own institutional matrix, each joint-stock company is required to have its own institutional matrix structure of relations with participants in corporate relations. It is based on institutions that define the structure, rules, and limitations of interaction.

The main goal of institutional interaction involves management and control stages that serve to increase the effectiveness of interaction between corporate governance bodies and other stakeholders. Studying management institutions in a single complex allows us to determine their internal unity with respect to a certain type of matrix. In the corporate governance structures of Uzbekistan, there are two types of institutions: normative and organizational.

## 5. Conclusion

The solution of scientific, methodological, and practical problems of achieving a balance of interests in the system of relations in the field of corporate governance is relevant. Therefore, priority is given to the introduction of modern forms of doing business based on a system of norms regulating the interaction of market participants. In the institutional economy,



it is necessary to develop new approaches aimed at the rational formation of relationships between corporate governance and control systems.

The corporate governance system should be formed within its structure as a system that regulates the influence and requirements of internal and external processes and institutions that influence the distribution and control of resources among participants.

Taking the above into account, it is advisable to systematize the existing tools in the theory and practice of managing relationships in the corporate governance system.

The stakeholders in the corporate relations of joint-stock companies are state and local authorities, public organizations, shareholders, investors, managers, employees, partners, consumers, and the media, as shown in the table above.

In the effective organization of interaction, it is necessary to take into account all interested parties. The important thing is that they should be considered not from the point of view of their composition, but from the point of view of their impact on joint-stock companies. In particular, the main consumers of chemical enterprises are agricultural entities operating in the conditions of Uzbekistan. To avoid conflict situations, any opinions based on the interests of stakeholders should be taken into account in a timely manner.

The process of organizing corporate relations is shown in Figure 18. The proposed approach to the process of organizing corporate relations contributes to the budgeting of mutual relations.

For example, the state, as a regulatory body, must monitor the compliance of joint-stock companies with the legislation of the Republic of Uzbekistan, the compliance of their internal documents with general rules, and their development. And the investor must be aware of the performance indicators of the joint-stock company. These circumstances require the establishment of a system for providing joint-stock companies with constant information for interested parties. It is also necessary to take into account the interests of each stakeholder when organizing cooperation.

To prevent conflicts of interest with individuals capable of significantly influencing the joint-stock company, a specialist in the organization and control of corporate relations should develop cooperation guidelines.

In the corporate governance system, corporate culture is the most important component of interaction. The system of ethical norms in entrepreneurial activity includes the ethics of relationships, etc. The corporate culture created by a joint-stock company should be considered



as an intangible, but effective strategic tool of mutual cooperation, ensuring the loyalty of stakeholders, trust in relationships, helping to achieve common goals.

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