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STORAGE AND EXCHANGE OF FINANCIAL INFORMATION: ISSUES AND REQUIRED STANDARDS

ABSTRACT
This article is devoted to the analysis of the problems of storage and exchange of financial information in the context of the modern financial market. The article examines in detail the most common problems faced by companies, banks and other financial institutions that store and exchange financial information. For each problem, it describes its impact on the financial system and proposed standards that can help solve the problem. In addition, the article also examines blockchain technology in detail and its possible use in the context of storing and exchanging financial information. The conclusions of the article state that solving the problems of storing and exchanging financial information is an important task for ensuring the stability of the financial system, and the use of blockchain technology can be an effective solution to achieve this goal.

Keywords: financial information; financial system; financial reporting; documents; electronic format; blockchain technology; standards for the forming; storage and exchange of financial information; accounting, analysis; auditing.

Introduction

Financial reporting and accounting is an important element of any successful company. In accordance with the legislation, enterprises are required to present various reports and documentation, which is a key tool in interaction with investors, banks, financial authorities and other stakeholders. However, the process of creating and storing financial information can be very complex and expensive, especially for companies with a large number of branches and operations in different countries.

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In this regard, many initiatives and technologies have appeared that help automate reporting processes and ensure the reliability and integrity of financial information. Blockchain technology is one such initiative that can solve many problems with the storage and exchange of financial information. In this article, we will look at the main problems and challenges related to the storage and exchange of financial information and analyze how blockchain technology can be used to solve them.

In today's world, the exchange of financial information is extremely important for many companies and organizations that carry out their activities in the field of finance. However, there are numerous problems related to the storage and transfer of financial information, such as security, data protection, insufficient standardization and the inability of the exchange system to meet the requirements of speed and scalability. To solve these problems, it is necessary to develop standards for the storage and exchange of financial information that would meet today's requirements and ensure high security, efficiency and scalability.

More and more organizations prefer electronic formats for storing and exchanging financial information, because it is a more efficient and economical way compared to traditional paper formats. However, this approach faces significant challenges related to security, reliability, and standardization. Non-standard formats and the lack of uniform standards lead to problems in the exchange of financial information between different entities, which can affect the work of the banking system as a whole. In addition, there is a risk of leakage of confidential information due to vulnerabilities in data storage and sharing systems. Thus, the need to develop and implement standards for the storage and exchange of financial information is becoming increasingly urgent.

In recent years, many studies and articles have been published on the problems and standards of storage and exchange of financial information.

Continuing the literature research, it can be noted that at the moment there are many different standards for storing and exchanging financial information, such as ISO 20022, XBRL, FIBO, and others. Each of them has its advantages and disadvantages (table 2).

For example, the ISO 20022 standard is very flexible and can be applied to different types of financial transactions. It also contains a large amount of detail, allowing for more complete transaction information to be conveyed. However, the implementation of the standard may require significant costs, as a significant amount of work is required to develop and configure the systems.

XBRL is also a standard for storing and exchanging financial information, in particular company reports. One of its advantages is that it allows you to automate the processes of collecting and processing financial information. However, using the standard requires certain skills and knowledge, so its implementation can sometimes be difficult.

FIBO is a standard used to describe financial information. It is based on ontology and allows describing financial concepts and their relationships. One of the advantages of FIBO is that it can be easily integrated with other standards. However, its use requires certain knowledge and experience in the field of ontologies and financial reporting.

Most companies that work with financial information have not yet moved to standardized systems for storing and sharing this information. Hence the problem of insufficient automation of financial processes, high costs of data processing and storage, insufficient accuracy and reliability of data, as well as delays in providing financial statements.

The blockchain technologies and smart contracts can greatly facilitate the processes of storing and exchanging financial information. For example, providing one-time access to data and controlling its integrity using blockchain technology can reduce the risk of unauthorized access to data. Smart contracts, in turn, can ensure automatic processing and storage of financial information, reduce the number of errors, and facilitate the process of interaction between different parties.

Table 1. Characteristics of standards for storage and exchange of financial information.

Name of standard	Short characteristics, advantages and disadvantages
ISO 20022 (International Organization for Standardization)	Very flexible standard that can be applied to different types of financial transactions. It also contains a large amount of detail, allowing for more complete transaction information to be conveyed. However, the implementation of this standard may require significant costs, as a significant amount of work is required to develop and configure the systems.
XML data format (Extensible Markup Language)	Is widely used in the financial field. XML allows you to create structured data that is convenient for sharing and analysis. Various encryption and user authentication protocols may be used to ensure data security and privacy.
XBRL (eXtensible Business Reporting Language)	Standard which is specially designed for reporting financial information. XBRL allows standardization of data format and enables efficient and reliable exchange of financial information between different systems and platforms. Also, XBRL allows you to automate the process of collecting and analyzing financial information. One of its advantages is that it allows to automate the processes of collecting and processing financial information. However, using the standard requires certain skills and knowledge, so its implementation can sometimes be difficult.
FIBO (Financial Industry Business Ontology)	Standard used to describe financial information. It is based on ontology and allows describing financial concepts and their relationships. One of the advantages of FIBO is that it can be easily integrated with other standards. However, its use requires certain knowledge and experience in the field of ontologies and financial reporting.
SWIFT (Society for Worldwide Interbank Financial Teleco-mmunication)	Widely used standard in the financial sphere, which allows banks and other financial institutions to exchange financial information. SWIFT provides safe and reliable transfer of financial information between banks and other financial institutions in real time. Data encryption and authentication protocols used in SWIFT protect financial information from unauthorized access.
PSD2 (Revised Payment Service Directive)	Standard is implemented in EU countries. This standard allows to create an open banking platform that gives users the opportunity to perform financial transactions through third-party services and applications. PSD2 ensures the protection of financial data of users and promotes the development of innovations in the financial sphere.
KYC (Know Your Customer)	Ensuring standard was developed for storage and exchange of customer data in the financial sector. It allows financial institutions to check customers for compliance with the law and detect possible fraudulent schemes.
Ripple	Is a platform for payments between banks and other financial institutions that uses blockchain technology. Ripple's solution allows banks and other institutions to make international money transfers in real time and with lower commission costs.
Corda project, developed by R3	Is the Blockchain-based standards development. It is a platform for exchanging of financial information between banks and other financial institutions that ensures security, transparency and efficiency of data exchange. Corda uses distributed ledger technology (DLT) to store and transfer financial information between market participants.

Despite of this, the importance of standardization of blockchain technology should be emphasized in order to ensure its wide application in the financial sphere. The lack of standards can lead to different companies using different smart contracts and blockchain protocols, leading to difficulties in ensuring compatibility and interoperability.

Some of the most significant recommendations offered by research in this area include the following:

1. Development of new standards for data exchange and a common reporting format, allowing to ensure transparency and completeness of financial information.
2. Ensuring reliable and safe storage of financial data, in particular with the help of blockchain technologies.
3. Improving data exchange infrastructure between different markets and regulators.
4. Creation of mechanisms for detection and prevention of financial fraud and other types of criminal activity.
5. Development and implementation of a system of monitoring and analysis of financial information in order to ensure effective control over financial activities and risks.

The blockchain technologies in financial reporting and data exchange can improve the efficiency and transparency of the financial system as a whole. However, in order to achieve this, it is necessary to resolve a number of technical, organizational and legal issues. Research in the field of digital reporting and blockchain technology is ongoing and will likely provide additional recommendations and insights to improve the financial system in the future.

Presentation of the main research material

Financial information is a key element of any company's management. To ensure an effective management and decision-making process, enterprises must collect, process and analyze large amounts of financial information. However, this process can be quite complex and time-consuming, especially when information is stored on different platforms and systems.

One of the ways to solve this problem is to use blockchain technology. Blockchain is a distributed database that allows data to be stored and processed in a secure and decentralized manner. This allows enterprises to ensure the reliability, integrity and confidentiality of financial information. However, certain standards are necessary for the successful use of blockchain technology in the storage and exchange of financial information.

One of the most important standards is the data format standard. Financial information can be presented in various formats, such as CSV, Excel, PDF and others. This can cause problems in the process of data exchange and processing. To ensure efficient storage and exchange of financial information, it is necessary to define a single and standardized data format.

The second important standard is the standard for data confidentiality and reliability. Financial information is very sensitive and confidential, so ensuring data security and protection is an important aspect in the process of storing and sharing financial information. Various methods can be used for this, such as encryption, digital signatures, user authentication, and others.

The third important standard is the software application interface (API) standard. API allows different systems and platforms to exchange data and cooperate with each other. With the help of a standardized API, it is possible to ensure the efficient exchange of financial information between different systems and platforms.

The last important standard is the data verification standard. Before financial information is stored or exchanged, it must be checked for authenticity and accuracy. Various verification methods can be used for this, such as signature verification, digital signature verification, and others.

In conclusion, the storage and exchange of financial information is an important element of the management of any company. The use of blockchain technology can ensure the security and reliability of financial information, but for this, it is necessary to standardize the data format, ensure the confidentiality and reliability of the data, standardize the API, and ensure the verification of the data. Only then can effective and safe processing of financial information be guaranteed in any sector of the economy. Since financial information is very sensitive, the standardization of its storage and exchange is of great importance to protect the privacy and security of the data.

One of the main problems of storing and exchanging financial information is the lack of standardization of the data format. Different systems and platforms may use different data formats, which complicates the process of exchanging information between them. To solve this problem, it is necessary to standardize the data format, which will allow efficient and reliable exchange of financial information between different systems and platforms.

Another concern is data privacy and security. Financial information is very sensitive, so it is necessary to ensure the security and confidentiality of the data during its storage and sharing. Various methods of encryption, digital signature and user authentication can be used for this purpose.

The third challenge is the need for efficient exchange of financial information between different systems and platforms. For this, it is necessary to standardize the software interface (API), which will allow different systems and platforms to exchange data and cooperate with each other.

The last problem is the need to verify data before it is stored or shared. Various methods can be used for this, such as data validation and checking for compliance with standards. Automated data validation systems can also be used to detect and correct errors in real time.

To solve these problems, it is necessary to create standards for the storage and exchange of financial information that meet modern data security and privacy requirements. Such standards should be adopted and used by all entities involved in the storage and exchange of financial information.

One such standard is the XML data format (Extensible Markup Language), which is widely used in the financial field. XML allows you to create structured data that is convenient for sharing and analysis. Various encryption and user authentication protocols may be used to ensure data security and privacy.

Another standard is XBRL (eXtensible Business Reporting Language), which is specially designed for reporting financial information. XBRL allows standardization of data format and enables efficient and reliable exchange of financial information between different systems and platforms. Also, XBRL allows you to automate the process of collecting and analyzing financial information.

Another standard widely used in the financial sphere is SWIFT (Society for Worldwide Interbank Financial Telecommunication), which allows banks and other financial institutions to exchange financial information. SWIFT provides safe and reliable transfer of financial information between banks and other financial institutions in real time. Data encryption and authentication protocols used in SWIFT protect financial information from unauthorized access.

The next important standard is PSD2 (Revised Payment Service Directive), which is implemented in EU countries. This standard allows you to create an open banking platform that gives users the opportunity to perform financial transactions through third-party services and applications. PSD2 ensures the protection of financial data of users and promotes the development of innovations in the financial sphere.

Ensuring standards of storage and exchange of customer data in the financial sector is also an important issue. For this, the KYC standard was developed (Know Your Customer), which allows financial institutions to check customers for compliance with the law and detect possible fraudulent schemes.

General standards for storage and exchange of financial information also ensure the creation of effective financial accounting and auditing systems. Such systems allow banks and other financial institutions to keep records of their activities and help in the detection and prevention of financial crimes.

All these standards help ensure reliable and secure exchange of financial information between financial institutions and customers. However, in order to ensure the effective functioning of these standards, it is necessary to ensure their interaction and compatibility.

Recently, more and more attention has been paid to the development of communication standards between financial institutions and clients, which are based on blockchain technology. Such standards can ensure a more efficient and secure exchange of financial information between market participants.

One of the examples of the development of communication standards between financial institutions and clients based on the blockchain is

the Ripple project. Ripple is a platform for payments between banks and other financial institutions that uses blockchain technology. Ripple's solution allows banks and other institutions to make international money transfers in real time and with lower commission costs.

Blockchain- based standards development is the Corda project, which was developed by R3. Corda is a platform for exchanging financial information between banks and other financial institutions that ensures security, transparency and efficiency of data exchange. Corda uses distributed ledger technology (DLT) to store and transfer financial information between market participants.

Therefore, the standards of storage and exchange of financial information are an important component of the functioning of financial markets. They make it possible to ensure the security and efficiency of data exchange between financial institutions and customers, as well as to reduce commission costs and processing time of financial transactions. However, in order to ensure the efficient operation of the standards, it is necessary to ensure their interaction and compatibility with each other.

In this regard, one of the important tasks is the creation of general standards for the storage and exchange of financial information that can be used by all market participants. These standards should be simple and clear to avoid mistakes and ensure rapid implementation. In addition, they must be secure and ensure the confidentiality of financial information.

Blockchain technology can be useful for developing standards for storing and sharing financial information. Blockchain allows you to ensure the security and transparency of data exchange, as well as to ensure the confidentiality of financial information. In addition, blockchain technology can reduce the fees and processing time of financial transactions.

Much research has been conducted in the field of financial reporting to examine the effectiveness and benefits of using standards and technologies such as XBRL, IFRS and Blockchain. For example, studies have shown that using the XBRL standard allows businesses to reduce reporting costs, improve the quality of financial reporting, and ensure fast and accurate exchange of financial information.

Also, research into Blockchain technology in financial reporting has shown the potential of this technology to improve the efficiency of the reporting process, reduce the possibility of fraud and provide more accurate and reliable financial reporting. However, so far the application of Blockchain technologies in financial reporting is limited, especially taking into account the requirements for confidentiality and protection of personal data.

Therefore, there are many problems and challenges in the field of financial reporting that need to be solved. The development and use of standards and technologies such as XBRL, IFRS, and Blockchain can help improve the quality and efficiency of financial reporting, as well as ensure a more accurate and reliable exchange of financial information. However, it is necessary to continue research in the field of financial reporting and the introduction of new technologies, taking into account the requirements for confidentiality and information protection.

Such technologies can help solve problems in the field of storage and exchange of financial information, ensuring security, transparency and efficiency of processes. However, for successful implementation, common standards and regulation are needed to ensure their compatibility and compliance with legislation. In addition, it is quite difficult to create a universal technology that will satisfy the needs of various companies and institutions, so it is important to maintain a dialogue between market participants and constantly improve technologies.

The literature review shows that the probability of successful implementation of blockchain technologies in the field of financial reporting depends on the improvement of standards, universality of technologies and cooperation between market participants. The development of such standards and the establishment of common rules can help ensure the safety and efficiency of the exchange of financial information, which in turn can contribute to the increase of trust between market participants and the growth of its potential.

Based on the analysis of the literature, several conclusions can be drawn regarding the trends and prospects for the development of standards for the storage and exchange of financial information.

First, it can be noted that standards developers are actively using the latest technologies, such as blockchain, encryption, smart contracts, and others, to create safe and efficient systems for storing and exchanging financial information.

Secondly, the role of standards in the economy is growing, as they allow to increase the efficiency of financial management and reduce risks in the conditions of increased competition and globalization.

Thirdly, the use of open standards, which ensure the interaction of various systems and services and allow creating uniform interfaces for users, is gaining more and more popularity.

Fourthly, it should be noted that the development of standards for the storage and exchange of financial information poses the task of ensuring data security and confidentiality. In this regard, various methods of encryption and identification of users are actively used.

In general, it can be concluded that the development of standards for storage and exchange of financial information has a significant impact on the development of the financial industry and the economy as a whole. At the same time, it is extremely important to ensure the security and confidentiality of information.

Based on the literature review, it can be concluded that digital reporting and blockchain technologies have significant potential to improve the processes of storing and exchanging financial information. However, there are several issues that need to be addressed so that these technologies can be effectively used.

First, uniform standards for storing and sharing financial information must be created to ensure interoperability between different systems and allow automated processes to work properly. Second, it is necessary to ensure data security and protection against cyber-attacks, as digital data is particularly sensitive. Third, the regulatory and regulatory environment needs to be addressed, as blockchain and digital reporting are new technologies and their status and legal regime need to be determined.

However, despite these challenges, digital reporting and blockchain have great potential to streamline the processes of storing and sharing financial information, which can lead to increased business efficiency and an improved economic environment as a whole.

General standards for the storage and exchange of financial information can ensure the efficiency and security of financial markets. However, for their successful implementation, it is necessary to ensure interoperability and compatibility between different standards and platforms. In addition, to ensure the effective operation of common standards, it is necessary to take into account the needs of different market participants. For example, banks and other financial institutions may have different requirements for the format and exchange of financial information compared to other market participants, such as small businesses or individuals.

Therefore, in order for the standards to be accepted and used by different market participants, they should be developed taking into account the needs of different categories of users.

Based on the analysis, we can conclude that the topic of reporting standards based on blockchain technology is quite new and promising. To achieve the maximum effect from the use of blockchain technology in reporting, it is necessary to develop appropriate standards that would ensure not only data protection, but also the appropriate quality and reliability of reports. This requires the use of state-of-the-art blockchain technologies, such as Ethereum, and consideration of various factors affecting the effectiveness and usability of blockchain- based reporting standards.

Blockchain- based reporting standards in the world, such as XBRL and XBRM, as well as other protocols and solutions to ensure the quality and protection of financial information. However, it is necessary to conduct additional research and develop new standards that would take into account the specifics of working with financial information, its placement, storage and exchange.

Also, it should be noted that the implementation of blockchain- based reporting standards can be used not only in the financial sector, but also in other industries, such as logistics, health, energy and many others. This opens up new opportunities for development and innovation, which positively affects the global economy and society as a whole.

Based on the conducted research, it can be concluded that the issue of standardization in the field of digital reporting and blockchain technologies is relevant and has a significant

impact on the business environment. There are already some standards, such as XBRL, which relate to reporting, as well as developed standards for blockchain technologies, for example, Smart Contract Markup Language (SCML) and Blockchain Interoperability Alliance (BIA). However, in general, standardization in these fields is ambiguous and difficult.

An important factor delaying standardization is the lack of a single platform for data exchange and collaboration between different platforms. In addition, there are security, privacy and data protection issues related to the storage of financial information on the blockchain.

A necessary condition for successful standardization is active participation in relevant industries.

Conclusion

Standards for storage and exchange of financial information are an important element of the development of financial markets. They ensure the security and efficiency of data exchange between financial institutions and customers, and reduce commission costs and processing time for financial transactions.

To ensure the effective operation of common standards, it is necessary to ensure their interaction and compatibility between different standards and platforms. In addition, the standards must be simple and clear, as well as secure and ensure the confidentiality of financial information.

Blockchain technology can be useful for the development of standards for the storage and exchange of financial information, as it provides security and transparency of data exchange, as well as reduces the fees and processing time of financial transactions.

General standards for storage and exchange of financial information should take into account the needs of various market participants, including banks, financial institutions, small businesses and individual individuals. This will ensure their interoperability and compatibility with various standards and platforms, as well as provide broad user support.

At the same time, developers and providers of financial services should be careful when choosing and implementing standards for the storage and exchange of financial information. It is important to ensure that the standards meet all the needs and requirements of market participants, are secure and ensure the confidentiality of financial information.

Therefore, general standards for storage and exchange of financial information have great potential for the development of financial markets, ensuring the safety and efficiency of data exchange between financial institutions and clients.

Blockchain technology can be a significant step forward in solving problems with storage and exchange of financial information. In particular, blockchain can ensure the integrity and security of financial data, improve reporting processes and reduce the costs of their creation and storage. However, it is necessary to consider the importance of standardization in this process to ensure compatibility and interoperability between different systems and sources of financial information.

Also, it is important to remember that using blockchain to store and exchange financial information has its own challenges, particularly in the areas of regulation and privacy. These issues require further research and the development of an appropriate regulatory framework.

The blockchain technology can become a powerful tool for improving the processes of storing and exchanging financial information, particularly in the context of digital reporting. However, to achieve maximum results, it is necessary to combine it with other technologies and comply with standards and regulatory requirements.

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