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# PRESENTING FINANCIAL INFORMATION IN DIGITAL FORMATS AS A BASE FOR ANALYSIS AND AUDIT OF BUSINESS ACTIVITIES OF ENTERPRISES

## ABSTRACT

The digitalization era of public relations is increasingly affecting the means of presenting information about the economic activities of an enterprise, in particular financial, in the context of a global pandemic, which was caused by the global COVID-19. Increasingly, in our environment, there is a transition from paper to electronic information carriers. The financial information generated by business entities both in Ukraine and in the world as a whole is no exception.

The purpose of the study is to systematize the existing digital formats for presenting financial information as a basis for analyzing and auditing the business activities of enterprises in Ukraine.

The basis of the study is the methodological recommendations on the use of Taxonomy UA XBRL IFRS, instructions for the revision of the Ukrainian IFRS taxonomy, specialized software products, legislative framework of Ukraine. The following methods were used: graphical (to visualize the results of the study), and grouping (to systematize the advantages and disadvantages of software that uses tax services to conduct e-audits).

Digital formats for the presentation of financial information were analyzed. They are the basis for the analysis and audit of the enterprise's activities. The structure and characteristics of the legal framework for the disclosure of financial information in electronic XBRL format in Ukraine were given. Comparative analysis of financial information in digital format XBRL and SAF-T UA were carried out.

It has been determined that XBRL can be used as a basis for analyzing financial information in electronic format using special software, for example, to assess the financial condition, calculate indicators of financial stability, liquidity, solvency, business activity, enterprise profitability, etc. It has been proved that the electronic format of financial information SAF-T UA is used when conducting an electronic audit (e-audit) of taxpayers, and can also be used to calculate the tax burden (tax return, tax efficiency ratio) used by the State Tax Service of Ukraine for the purpose of control completeness of calculation and payment of relevant taxes and fees to the state budget.

**Keywords:** digital formats, XBRL, SAF-T, analysis, audit, financial information, enterprises

**JEL Classification:** M40, M41

## INTRODUCTION

The digitalization era of public relations is increasingly affecting the means of presenting information about the economic activities of an enterprise, in particular financial in the context of a global pandemic, which was caused by the global COVID-19. Increasingly, in our environment, there is a transition from paper to electronic information carriers. The financial information generated by business entities both in Ukraine and in the world as a whole is no exception. If there were no digital formats for preparation, presentation, approval, verification and publication, the presentation of such information would be impossible.

To date, the total number of business entities in Ukraine that provide financial information in the XBRL (eXtensible Business Reporting Language) format is approximately 5,000 units.

From January 01, 2023, it was introduced the mandatory submission by large taxpayers (as of 2021 there are 1371 of them) at the request of the regulatory authority (State Tax Service of Ukraine) of a standard audit file in the SAF-T (Standard Audit File for Tax) format during the audit. Also, from January 01, 2027, the submission of a mandatory audit file in SAF-T format is planned for all VAT payers.

The use of trend analysis in the field of digital formats for the presentation of financial information as a basis for analysis and audit of economic entities will allow us to analyze the changes and trends that occur both in the practical and scientific activities of society. For example, if during trend analysis there is an increase in public interest in the issues of XBRL and SAF-T digital formats, this may indicate an increase in demand for financial information, which may be the basis for its analysis and audit.

## LITERATURE REVIEW

The study of problematic issues of the formation of financial information in digital format is widespread among foreign researchers, but in recent years this issue has also become important among domestic scientists. J. Auksztol and M. Chomuszko [2] studied the data control framework for SAF-T reporting. At the same time, G.M. Biletskaya and N.L. Kovtunovich [3] explored certain aspects of the e-audit, in particular, the electronic format SAF-T. L.B. Vicente, H. O'Neill, and V. Pinho [4] considered a reporting model for decision support based on the SAF-T standard. Onikienko S., Polishchuk Y., Ivashchenko A., Kornyluk A. and Demchyshak N. [5] preliminary credit assessment of long-term projects of SMEs with non-standard cash flows is being studied.

The group of Ukrainian authors I.I. Podik, I.Yu. Shtuller and N.A. Gerasimchuk [16] performed a comparative analysis of tax audit files in the SAF-T format. Ukrainian authors M.M. Shyhun and K.V. Bezverkhyi [23] found the development of the XBRL format as a further direction in the digitalization of financial reporting.

Indonesian authors F. Frista, S. Utama, and S.V. Siregar [6] analyze the impact of XBRL implementation on revenue management. Czech authors P. Hanzal [7] and H. Jiri [7] considered the SAF-T electronic data exchange standard from business entities to tax authorities or auditors. O. Junus [8] and A. Irwanto [8] studied the reaction of stocks to the introduction of an enhanced business reporting language. Malaysian researchers A. Ilias [9], E.K. Ghani [9], N. Baidi [9], and R.A. Rahman [9] considered the adoption of XBRL in the context of an examination of a business reporting system in Malaysia. Macudziński M. [10] explored SAF-T as a tool to strengthen the tax system. N.R. Mosteanu [11] and A. Faccia [11] explored digital systems and new financial management challenges – fintech, XBRL, blockchain and cryptocurrencies. The group of authors F.F. Muñoz [12], D. Valentinetti [12], M.M. Rodríguez [12], A.M. Nieto [12] defined the role of XBRL in reporting. T. Oswari [13] and A. Januariato [13] analyzed the implementation of XBRL as a financial reporting standard in the Indonesian banking industry. R. Palas [14] and A. Baranes [14] explored investment decision-making through XBRL data representation. A. Perdana [15], A. Robb [15], F. Rohde [15] conducted a textual and contextual analysis of professional discourses based on XBRL data and information quality.

T. Hsieh [17] and J.C. Bedard [17] studied the impact of XBRL on the quality of financial reporting. The group of authors A. Fradeani [18], D. Panizzolo [18], and E. Metushi [18] analyzed XBRL's financial statements. Y. Huang [19], Y.G. Shan [19], and J.W. Yang [19] explored the cost of information processing and the information content of the stock price using XBRL. Y.G. Shan [20] and I. Troshani [20] determined the effect of the mandatory adoption of XBRL and IFRS. A.F. Tadesse [21] and N.E. Vincent [21] combined data analysis with XBRL. A group of foreign authors V. Tawiah and H. Borgi [22] carried out the impact of XBRL implementation on the quality of financial reporting.

Despite the growing attention of domestic and foreign scientists to this issue, it should be noted that in these works each of the electronic formats (XBRL and SAF-T UA) is indicated separately, but there are no questions regarding their comparison and the possibility of using them for analysis purposes, and also practical application during tax audits (e-audits).

## AIMS AND OBJECTIVES

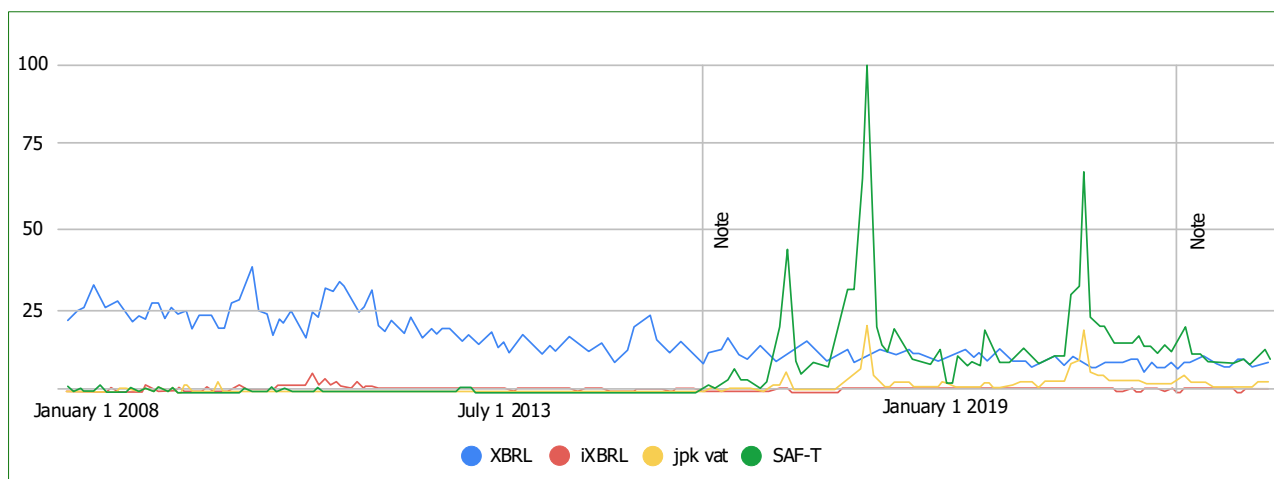
The purpose of the study is to systematize the existing digital formats for presenting financial information as a basis for analyzing and auditing the activities of an enterprise in Ukraine. To achieve the set goals, it is proposed to solve the following tasks: 1) to uncover the structure of the Regulatory and Legal support for the disclosure of financial information in electronic XBRL format and provide its characteristics; 2) to characterize the structure of the standard audit file in the

SAT-F UA format; 3) to define SAF-T UA file size rules and limits; 4) to compare financial information in XBRL format (UA XBRL IFRS taxonomy) and SAF-T UA (e-audit); 5) to highlight the advantages and disadvantages of software used by tax authorities to conduct e-audits.

## METHODS

Methodological recommendations on the use of Taxonomy UA XBRL IFRS, instructions for the revision of the Ukrainian IFRS taxonomy, specialized software products, scientific works of foreign and domestic researchers, and Ukrainian legislation became the conceptual and methodological basis of the research. Different methods were used in the study. Using trend analysis, the relevance of the study of digital formats of financial information in XBRL and SAF-T and a comparative description of financial information in XBRL format (IFRS taxonomy) and SAF-T UA (e-audit) were substantiated and given. Using a graphical method, the structure of the XBRL and SAF-T UA file was visualized, the composition of the subjects of presentation of financial information in the XBRL format was given, and the composition of indicators was provided for comparing digital formats of financial information. Logical generalization of results was used to formulate conclusions and proposals.

Formation of a comprehensive view of the main trends in the changes of stakeholders to digital formats of financial information is advisable to carry out using the trend analysis presented in Figure 1. This analysis was carried out using the Google Trends toolkit [1] for the period from January 1, 2008, to March 30, 2023, aimed at identifying patterns of change in the trend of search by users of the Google search engine of the four main concepts that most often explain digital formats of financial information (XBRL), iXBRL, Jpk Vat, SAF-T).



**Figure 1. Dynamics of changes in search frequency by categories of digital formats of financial information in the world according to Google Trends for the period January 01, 2008 - March 30, 2023.**

It should be noted that a feature of this type of trend analysis is the relative comparability of its results. It means when constructing a graphical interpretation of the trend, the maximum value of search activity for the selected concept is taken into account to display the content requested by Internet users.

For example, from the four selected categories, the most popular was the digital format of financial information “SAF-T”, while at the same time, the largest number of requests was in February 2018, which is observed in Figure 1, while the rest of the searches for the intensity of the other studied categories will be calculated exactly in relation to this maximum value.

Thus, according to the results of the trend analysis, it can be concluded that the interest of Internet users in certain issues has been at a consistently high level for more than 16 years. The digital financial information format SAF-T is the most used in the entire sample, iXBRL is the least searched, and JPK VAT and XBRL searches are medium in popularity.

That is why it is proposed to consider existing digital formats of financial information, such as XBRL and SAF-T, which serve as the basis for further analysis and audit in order to make appropriate management decisions.

## RESULTS

According to paragraph 2 of the Order of the Ministry of Finance of Ukraine "On approval of the translation of the Taxonomy of financial statements in accordance with international financial reporting standards" No. 709 dated November 13, 2020, financial statements based on the Taxonomy of financial statements in accordance with international standards are compiled and submitted in a single electronic format using an expandable language business reporting (XBRL) [20]. Mandatory presentation of financial information in a single electronic XBRL format in Ukraine is provided for certain business entities, namely: a) enterprises of public interest; b) public joint-stock companies; c) business entities operating in the extractive industries; d) enterprises engaged in economic activities by types, the list of which is determined by the Cabinet of Ministers of Ukraine [25].

Having singled out the subjects of the presentation of financial information in the XBRL format, it is proposed to consider the structure of legal support for the disclosure of financial information in the electronic XBRL format in Ukraine (Table 1).

**Table 1. The structure of the Regulatory and Legal support for the disclosure of financial information in electronic XBRL format in Ukraine.**

Level	Regulatory and Legal support
First	Law of Ukraine "On Accounting and Financial Reporting in Ukraine" and other laws
Second	Decree of the Cabinet of Ministers of Ukraine, Orders of the Ministry of Finance of Ukraine, the National Bank of Ukraine, the National Commission for Securities and the Stock Market, the National Commission for State Regulation in the Field of Financial Services Markets <a href="https://www.ukrinform.ua/rubric-economy/3055705-zelenskij-likviduvav-nackomfinposlug.html">https://www.ukrinform.ua/rubric-economy/3055705-zelenskij-likviduvav-nackomfinposlug.html</a>
Third	Clarifications, instructions, and guidelines on the organization and methodology of disclosure of financial information in electronic XBRL format in Ukraine

Regulatory support characteristics based on the proposed levels of the structure of the legal support for the disclosure of financial information in the XBRL electronic format in Ukraine are presented in Table 2.

**Table 2. The Regulatory and Legal support for the disclosure of financial information in electronic XBRL format in Ukraine.**

N	Regulatory document	Characteristic
1	Law of Ukraine "On Accounting and Financial Reporting in Ukraine" No. 996-XIV dated July 16, 1999 [25]	Enterprises prepare and submit financial statements and consolidated financial statements to public authorities and other users at their request in a manner, based on the taxonomy of financial statements according to international standards in a <b>single electronic format</b> , determined by the central executive authority, which ensures the formation and implementation of state policy in accounting.
2	Decree of the Cabinet of Ministers of Ukraine "On Approval of the Procedure for Presenting Financial Statements" No. 419 dated February 28, 2000 [26]	Financial statements and consolidated financial statements prepared on the basis of the taxonomy of financial statements according to international financial reporting standards in a <b>single electronic format</b> determined by the Ministry of Finance are submitted to the financial reporting collection centre, the operational management of which is carried out by the National Securities and Stock Market Commission, in order to provide access to public authorities, other bodies and users to the financial and consolidated financial statements presented by enterprises.  The annual financial statements and the annual consolidated financial statements, together with the relevant audit reports, the management report, the consolidated management report, the Statement of Payments to the Government and the Consolidated Statement of Payments to the Government, as required by law, must be published on the web page or website of the enterprise (in full) and in another way in cases specified by law, in a format that excludes the possibility of making changes to the financial statements by other users, and in a <b>single electronic format defined by the Ministry of Finance, based on the taxonomy of financial reporting under international financial reporting standards</b> .  The date of presentation of financial statements in a <b>single electronic format</b> is the date of receipt of an <b>electronic message about the receipt</b> by the financial reporting collection centre of such financial statements.
3	Resolution of the Board of the National Bank of Ukraine "On Approval of the Instructions on the Procedure for Compiling and Disclosing Financial Statements of Banks of Ukraine" No. 373 dated October 24, 2011 [27]	The Bank is obliged to prepare and present financial statements and consolidated financial statements based on the taxonomy of financial statements in accordance with international standards in a <b>single electronic format</b> .  The Bank, in order to generate financial statements in a <b>single electronic format</b> , uses the UA XBRL IFRS taxonomy, extended for banks in the XBRL format, posted on the page of the official website of the National Bank.

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Table 2. *Continued.*

N	Regulatory document	Characteristic
4	Memorandum No. 102/15 dated December 18, 2017 "On mutual understanding on the development and implementation of a financial reporting system" [28]	The main principles of the functioning of the system should be: <ul style="list-style-type: none"> <li>collection of reports prepared by the Enterprises in a <b>single electronic format</b>;</li> <li>processing and verification of reports in a <b>single electronic format</b> based on the validation rules defined by the Regulators under IFRS;</li> <li>obtaining reporting data in a <b>single electronic format</b> and storing financial information in a data warehouse.</li> </ul>
5	Order of the Ministry of Finance of Ukraine "On Approval of the Translation of the Taxonomy of Financial Statements in accordance with International Financial Reporting Standards" No. 709 dated November 13, 2020 [24]	Establish that financial statements based on the Taxonomy of Financial Reporting under International Financial Reporting Standards are compiled and presented in a <b>single electronic format</b> using Extensible Business Reporting Language (XBRL).
6	Order of National Securities and Stock Market Commission "On approval of the Procedure for the use of funds provided in the state budget for the operation of the financial reporting collection centre based on taxonomy according to international financial reporting standards in a single electronic format" No. 65 dated June 17, 2020 [29]	Budgetary funds are directed to ensure the functioning of the financial reporting collection centre by creating an integrated financial reporting system based on taxonomy according to international financial reporting standards in a <b>single electronic format</b> , including the purchase and commissioning of office equipment, computer equipment (including the purchase of software), which is provided together with the acquisition of computer equipment), active network and telecommunications equipment.
7	Letter of the Ministry of Finance of Ukraine "On the preparation and presentation of financial statements by enterprises that have independently decided to apply international financial reporting standards" dated March 05, 2021 [30]	Information on the reporting of enterprises in a single electronic format on taxonomy and links for registration in the Financial Reporting System, reporting and access to users are posted on the official website of the System (frs.gov.ua).
8	Letter from the National Bank of Ukraine "Clarification on the provision of financial statements by banks based on the taxonomy of financial statements in a single electronic format in 2021" No. P/60-0005/32457 dated April 15, 2021 [31]	To date, regulators have approved the Taxonomy UA XBRL IFRS 2020 (v1.2) and published it on the website frs.gov.ua of the Financial Reporting Systems. Also, the Taxonomy of UA XBRL IFRS 2020 is published on the official website of the NBU at the link <a href="https://bank.gov.ua/ru/about/taxonomy">https://bank.gov.ua/ru/about/taxonomy</a> in the section "Taxonomies of reporting UA XBRL IFRS" 2020 and on the official websites of other regulators.

Equally important for the audit is the use of a digital format for the presentation of financial information SAF-T UA. According to par. 2 p. 3.2 p. 3 of the Order of the Ministry of Finance of Ukraine "On Approval of the Procedure for Submitting Documents of a Large Taxpayer in Electronic Form" No. 1393 dated November 07, 2011 [31] the standard audit file in the SAF-T UA format is an electronic file of a standardized structure, containing data exported from the source accounting system on the availability and condition of assets, equity and liabilities, as well as information on changes in the financial and economic condition of the enterprise for a certain period. The same order approved the structure of a standard audit file in the SAT-F UA format, is shown in Table 3.

Table 3. Structure of a standard audit file in SAT-F format UA. (Source: compiled by the authors based on [31; 40, p. 123])

Section name	Subsection name
<b>Section I. Title</b>	Subsection 1.1. General WFP information
<b>Section II. Directories</b>	Subsection 2.1. Accounting policy
	Subsection 2.2. Operation directories
	Subsection 2.3. Owners (founders)
	Subsection 2.4. Balance/turnover sheets
	Subsection 2.5. Counterparties
	Subsection 2.6. Products (goods/works, services)
	Subsection 2.7. Inventories
<b>Section III. Accounting journal</b>	Subsection 2.8. Non-current assets
	Subsection 3.1. Accounting transactions

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**Table 3. Continued.**

Section name	Subsection name
<b>Section IV. Information on documentary support of accounting records</b>	Subsection 4.1. Sales details
	Subsection 4.2. Purchase Information
	Subsection 4.3. Information about payments not related to the sale/purchase of goods, works and services
	Subsection 4.4. Inventory operations
	Subsection 4.5. Operations with non-current assets
	Subsection 4.6. Information about accounting statements and other primary documents
<b>Section 5. Tax differences</b>	Subsection 5.1. Tax differences incurred by the company

After setting up the structure of a standard audit file in the SAT-F UA format (Table 3), it would be advisable to characterize it, Table 4.

**Table 4. Characteristics of the sections of the structure of a standard audit file in the SAT-F format UA.** (Source: compiled by the authors based on [30])

Section name	Characteristic
<b>Section I. Title</b>	The Title contains general information about the file, including the name of the software generating the file; general data about the business entity that represents the SAF-T UA, the selection criteria by which the file is generated, etc.
<b>Section II. Directories</b>	Directories are formed from information on the accounting policy of a business entity, owners (founders), types of business transactions, accounts / sub-accounts / analytical accounting accounts, counterparties, inventories/products (goods/works, services), and non-current assets. This section also displays information about the tax differences that have arisen for the company.
<b>Section III. Accounting journal</b>	Accounting transactions consist of information on the accounting entries of the enterprise in the context of each individual business transaction with details of the transaction performed, indicating its type, amount, information on the unique identification number of the counterparty - legal (individual) entity, data on accounting entries for this operation, as well as other information in the context of each accounting transaction.
<b>Section IV. Information on documentary support of accounting records</b>	Information on documentary support of accounting records contains information on documentary support of accounting records regarding sales, purchases, payments, inventory transactions, transactions with non-current assets and other operations of the enterprise.
<b>Section 5. Tax differences</b>	In the "Tax differences" section, data is filled in regarding tax differences, by which the financial result increases/decreases in the context of each indicator defined by the Tax Code of Ukraine, which, in the period for which information is provided at the request of the regulatory authority, had an impact on the financial result of a business entity (both decreasing and increasing). At the same time, each element of tax differences is reflected with a brief description of the characteristics of the essence of the operation, its justification in accordance with the requirements of IAS, and IFRS, reflection of the operations performed in the accounting records (accounting entries) of the business entity, the total amount of tax differences.

Analyzing the structure of a standard audit file in the SAT-F UA format (Table 4), it was found that the financial information on the economic activity of a business entity, which is given in it, is formed on the basis of data from primary documents, which at the same time is the basis for registering the facts of economic life on the accounts, which are registered in the Accounting journal and create an extensive system of analytical accounting of the enterprise.

Software developers should note that in order to ensure the technical possibility of submitting electronic data files in the SAF-T UA format to the data processing systems of the State Tax Service, the following rules and file size restrictions are established, Table 5.

**Table 5. SAF-T UA File Size Rules and Limits.** (Source: compiled by the authors based on [39])

Rules and Limits	Content
Maximum file size	600 MB generated XML data files
Files should be archived	the generated SAF-T UA data files should be archived in a zip archive
Zip archive size	cannot exceed 2GB
Possibility of the zip archive	zip archive can contain multiple XML data files
Transferring files in SAF-T UA format to the State Tax Service	no more than 10 zip files can be sent to the data processing system of the State Tax Service per transfer

Software developers are advised to take into account the rules and file size limits in the SAF-T UA format which are presented in Table 5 when creating and updating their software products. After considering the rules and limiting the size of files in the SAF-T UA format, it is advisable to move on to comparing financial information in the XBRL format (taxonomy UA XBRL IFRS) and SAF-T UA (e-audit). This analysis is given in Table 6.

**Table 6. Comparison of financial information in XBRL format (UA XBRL IFRS taxonomy) and SAF-T UA (e-audit).**

N	Comparative attributes	Digital data format	
		XBRL (taxonomy UA XBRL IFRS 2020)	SAF-T UA
1	Purpose	Creation and presentation of financial statements in accordance with the IFRS taxonomy in electronic XBRL format	To conduct an electronic audit of taxpayers
2	Regulation of the file with financial information at the state level	Regulated at the legislation level	Regulated at the legislation level
3	International regulation	Yes	Yes
4	Standardized electronic financial information file format	Yes	Yes
5	Mandatory disclosure of financial information	Mandatory for certain categories of business entities	Mandatory for certain categories of taxpayers
6	The format for providing financial information is defined	XBRL	SAF-T UA
7	Reporting period	Quarter, half-year, 9 months, year	Year, at the request of the State Tax Service of Ukraine
8	The object of information	Financial statements	Financial and economic activity of a business entity
9	Degree of disclosure	Summarizing information in financial statements items at the level of synthetic accounting	Information about the financial and economic activities of the enterprise is disclosed at the level of analytical accounting
10	Access to financial information	Open	Closed
11	Procedure for the establishment of a file with financial information	With the help of special software	With the help of special software
12	Choosing specialized software to create a file with financial information	Independently at the discretion of the business entity	Independently at the discretion of the taxpayer
13	Users of financial information using a specialized file format	All interested users	State Tax Service of Ukraine
14	Electronic presentation of financial information	Financial Statement Collection Center "Financial Reporting System"	Electronic account of the taxpayer or other specialized software
15	Impact on the development of accounting and financial reporting computer information systems	Computer information systems designed for the preparation, formation, approval and presentation of financial statements must have the function of uploading financial information to the XBRL format.	Computer information systems intended for accounting should have the function of uploading financial information to the SAF-T UA format
16	Responsibility for failure to submit financial information in electronic format	Established at the legislative level	Not established at the legislative level as of March 30, 2023, a draft Law on liability for failure to submit a standard audit file in the SAF-T UA format has been developed

As can be seen from Table 6, with regard to the comparative sign of "purpose", the XBRL digital data format is characterized by the creation of financial statements in accordance with the IFRS taxonomy, and the electronic file in the SAF-T UA format is used to conduct an electronic audit of taxpayers. Therefore, it can be noted that the above digital formats of financial information have a specific assignment and are used to present information for various purposes.

Digital financial reporting files in XBRL and SAF-T UA format are regulated at the state level. Although XBRL and SAF-T electronic financial information formats are international, each country approves them according to national circumstances. In Ukraine, on April 9, 2021, the Financial Reporting System Management Committee approved the electronic format of Taxonomy UA XBRL IFRS 2020 (v.1.2) for use by reporting entities when preparing financial statements in electronic

format for 2020 and interim financial statements in 2021 [32]. The content of the standard audit file in the SAT-F UA format was approved by the Order of the Ministry of Finance of Ukraine "On Approval of the Procedure for Submitting Documents of a Large Taxpayer in Electronic Form" No. 1393 dated November 07, 2011 [31].

International regulation of electronic file formats of monetary information XBRL and SAF-T. To harmonize European and domestic legislation, in particular, in the field of digitalization of accounting and taxation, our country has implemented international legislation on the XBRL and SAF-T file formats to provide financial information used by the international community.

*Standardized electronic format with financial information.* Both the XBRL format and SAF-T have an approved structure that governs regulatory documents.

*Mandatory disclosure of monetary information.* Mandatory disclosure of financial information in XBRL format is provided in accordance with paragraph 12<sup>1</sup>.5 Article 12<sup>1</sup> of the Law of Ukraine "On Accounting and Financial Reporting in Ukraine" No. 996-XIV dated July 16, 1999, for enterprises of public interest, public joint-stock companies, economic entities operating in the extractive industries, as well as enterprises engaged in economic activities by types, the list of which is determined by the Cabinet of Ministers of Ukraine [24]. The concept of e-audit in Ukraine [33] provides for the provision of financial information in the SAF-T UA format for the following categories of taxpayers, Table 7.

**Table 7. Mandatory provision of financial information in the SAF-T UA format for different categories of taxpayers.** (Source: formed by the author based on [32; 39, p. 125])

N	Date of mandatory implementation of the presentation of financial information in the SAF-T UA format	Categories of taxpayers who are required to submit financial information in SAF-T UA format
1	From January 01, 2023	Large taxpayers at the request of the regulatory authority during the audit
2	From January 01, 2025	Large taxpayers (subject to the adoption of appropriate amendments to tax legislation)
3	From January 01, 2027	All VAT payers (subject to the adoption of appropriate amendments to tax legislation)

*Defined format for presenting financial information.* The format for providing financial information in digital form is 1) XBRL; and 2) SAF-T UA.

Reporting period. The reporting period for the presentation of financial information in XBRL format is the first quarter, the first half of the year, nine months, and a year. The reporting period for financial information in SAF-T UA electronic file format is a calendar year.

*The object of information.* The object of information, which carries a file in the XBRL format, is the financial statements of the enterprise, and for a standard electronic file in the SAF-T UA format, the object of information is the entire financial and economic activity of the enterprise. Therefore, the financial information object provided in the SAF-T UA standard electronic format is more detailed than in the digital XBRL format.

*Degree of disclosure.* Disclosure of financial information in the XBRL format is carried out in the relevant financial statements at the level of synthetic accounting, and in the SAF-T UA format, information on the financial and economic activities of the enterprise is disclosed at the level of analytical accounting. It is the difference between the above digital formats.

*Access to financial information.* Access to financial information in the XBRL format is open, but in the SAF-T UA format, financial information is closed, because in the XBRL format information is summarized, and SAF-T UA contains detailed information about counterparties, sales, acquisitions, and inventories, which may constitute commercial secret.

*Procedure for the establishment of a file with financial information.* Regarding the creation of XBRL files, as mentioned above, there is specialized software for creating the appropriate files. To create files in the SAF-T format, foreign special software is used, such as ACL (Audit Command Language), IDEA (Interactive Data Extraction and Analysis), and SESAM (ESKORT Computer Audit), the advantages and disadvantages of which are given in Table 8.



**Table 8. Advantages and disadvantages of software that uses tax authorities to conduct e-audits.** (Source: built by the author based on research by G.M. Beletskaya [34, p. 74-95])

Name of the software	Advantages of software	Disadvantages of software
ACL (Audit Command Language)	<ul style="list-style-type: none"> <li>▪ flexible architecture (audit planning, independent development and debugging of audit scenarios (the ability to use your own methods);</li> <li>▪ focused on external audit;</li> <li>▪ high level of security;</li> <li>▪ the ability to process big data (finding facts of fraud);</li> <li>▪ automated collection of analytical information;</li> <li>▪ risk-oriented management system;</li> <li>▪ excellent online support and training;</li> <li>▪ large online community (14,000 clients in more than 150 countries, including the Big Four);</li> <li>▪ shared script library (an online repository of pre-written analytical tests, allowing the auditor to focus on the result, not the process);</li> <li>▪ use of innovations: cloud services, continuous monitoring.</li> </ul>	<ul style="list-style-type: none"> <li>▪ acquisition and maintenance costs;</li> <li>▪ lack of Ukrainian-language interface;</li> <li>▪ overloaded training schedule;</li> <li>▪ limited to the ERP system that this software supports (SAP and Microsoft solutions), for the rest - additional configuration is required.</li> </ul>
IDEA (Interactive Data Extraction and Analysis)	<ul style="list-style-type: none"> <li>▪ universality;</li> <li>▪ the ability to download any structured information in different formats;</li> <li>▪ the possibility of phased implementation (starting with the launch of a pilot program with subsequent development);</li> <li>▪ the ability to integrate this software with the existing system used by the fiscal authority;</li> <li>▪ the ability to process large amounts of data;</li> <li>▪ using the method of successive eliminations;</li> <li>▪ use of more than a hundred integrated tests;</li> <li>▪ the ability to record the conduct of analytical procedures with their subsequent playback in the future;</li> <li>▪ large online community (used in over 90 countries);</li> <li>▪ high level of security.</li> </ul>	<ul style="list-style-type: none"> <li>▪ the cost of acquisition (development) and maintenance. When purchasing ready-made software, it becomes necessary to improve and adapt it in accordance with the peculiarities of the domestic tax system, which in the end may exceed the cost of developing a new software product;</li> <li>▪ lack of Ukrainian-language interface;</li> <li>▪ the need to train profile specialists.</li> </ul>
SESAM (ESKORT Computer Audit)	<ul style="list-style-type: none"> <li>▪ easy to use but very powerful;</li> <li>▪ allows to quickly and efficiently analyze big data;</li> <li>▪ improves audit consistency and quality;</li> <li>▪ does not require auditors to have specialized knowledge in the IT field;</li> <li>▪ does not require long training;</li> <li>▪ the cost of acquiring software and their implementation;</li> <li>▪ constantly improved in accordance with the requirements of auditors.</li> </ul>	<ul style="list-style-type: none"> <li>▪ is not specialized software focused on external audit;</li> <li>▪ requires adaptation to the current tax system;</li> <li>▪ insignificant online community;</li> <li>▪ lack of Ukrainian-language interface.</li> </ul>

It is necessary to develop Ukrainian specialized software that will generate a standard audit file in SAF-T UA format or adapt foreign software to the above format for use in Ukraine both as business entities, and bodies of the State Tax Service of Ukraine.

*Choosing specialized software to create a file with financial information.* Enterprises are free to choose specialized software to create digital file in both XBRL and SAF-T formats.

*Users of financial information using a specialized file format.* Users of financial information in XBRL digital format are all interested users of such information. Users of such information in SAF-T UA electronic format are the bodies of the State Tax Service of Ukraine. Presentation of financial information in XBRL digital format is carried out in the Center for the collection of financial statements "Financial Reporting System", which provides: 1) collection of financial statements prepared on the basis of Taxonomy UA XBRL IFRS; 2) public disclosure (on the website <https://frs.gov.ua>) of financial statements compiled on the basis of the Taxonomy UA XBRL IFRS; 3) storage and protection of information as part of the financial statements submitted by enterprises in the data warehouse; 4) creation and maintenance of the functioning of "users' accounts" (web applications for enterprises that submit financial statements, and for public authorities, other bodies and users of financial statements); 5) access of public authorities, other bodies and users to financial statements submitted by enterprises, etc. [34, 35, 36]. Submission of financial information in electronic format SAF-T UA will be carried out in the taxpayer's electronic account or using other specialized software that taxpayers now use to submit tax reports to the State Tax Service of Ukraine.

*Impact on the development of accounting and financial reporting computer information systems.* Uploading financial information in XBRL format requires the refinement of existing software (System Analysis Program: ERP and Financial Management, Business Automation Software: accounting, MASTER: Accounting, Accent, Info-Accountant, AB OFFICE 4.1, etc.) used by the enterprise for accounting and financial reporting. The same will be typical for uploading a file to the SAF-T UA format because the above software also needs to be adapted for this.

*Responsibility for failure to submit financial information in electronic format.* There is no liability for failure to submit financial information in XBRL digital format in Ukraine for 2023. Liability for failure to submit financial information in SAF-T UA digital format has not been established at the legislative level as of March 30, 2023, but a draft Law on liability for failure to submit a standard audit file in SAF-T UA format has been developed [38].

## DISCUSSION

During the study of digital formats as a base for analysis and audit of business activities of enterprises, the lack of uniform approaches to their use, particularly in practice, was confirmed. This proves the need to analyze the use of the most common digital formats for presenting financial information such as XBRL and SAF-T for analysis and audit purposes.

In this context, we support the opinion of I.I. Podik, I.Y. Shtuler, and N. Gerasymchuk [16] regarding the fact that before the implementation of SAF-T into national practices, it should be considered that the standard approach can be neither practical nor desirable since each tax system has different conditions, legislative framework, administrative environment and tax culture. The implementation experience and components of tax audit files of leading European countries highlighted by the authors is an example of the application of best practices and therefore can serve as the basis for its implementation in Ukraine.

In general, each of the researchers [2; 3; 4; 7; 10; 16] considers the electronic format SAF-T, at the same time another group of authors [6; 8; 9; 11-15; 17-23] provides an understanding of the XBRL format. At the same time, we agree with the opinion of J.C. Bedard [17], H. Borgi [22], T. Hsieh [17], A. Perdana, A. Robb, F. Rohde [15], V. Tawiah [22], studying the impact of XBRL on the quality of financial reporting, which can be significant and mostly positive. However, it should be noted that the quality of financial reporting depends not only on the use of XBRL but also on how this information is correctly prepared and verified. Even with XBRL, problems can arise if the data in the reports is incorrect or misleading. Therefore, it is important to maintain the highest financial reporting standards, whether XBRL is used or not.

S. Onikiienko, Y. Polishchuk, A. Ivashchenko, A. Kornyluk, & N. Demchysyak [5] should pay attention to digital formats for generating financial information to conduct the credit assessment of long-term SME projects with non-standard cash flows.

However, one should disagree with the opinion of the authors Y.G. Shan and I. Troshani [20] that XBRL has a major negative impact on audit fees, which are lower for larger firms. It is obvious that the verification of financial information in XBRL format requires highly qualified specialists who carry out its verification, which implies their competitive payment.

## CONCLUSIONS

A structure of regulatory support for the disclosure of financial information in the electronic XBRL format was built and its content characteristic was provided. These were done to systematize existing digital formats for the presentation of financial information as a base for analysis and audit of business activities of enterprises in Ukraine and to understand its legislative regulation and the possibility of practical application. During the study, it was found that after an enterprise has signed a file with financial information in the XBRL digital format for submission to the Financial Reporting Center "Financial Reporting System", the audit firm must check and sign the above file. Thus, XBRL format using special software is recommended as a base for analysis of financial information in electronic format to assess financial condition and to calculate indicators of financial stability, liquidity, solvency, business activity, enterprise profitability, etc.

At the same time, the study found that the characterized structure of the standard audit file in the SAF-T UA format made it possible to understand its information content for the needs of analysis and audit. The study has determined that the certain rules and file size limits in the SAF-T UA format made it possible to find out the amount of financial information that can contain the above electronic file format, and it can be recommended to software developers to take them into account when creating and updating their software products. The author's comparative analysis of financial information in digital format XBRL (taxonomy UA XBRL IFRS) and SAF-T UA (e-audit) made it possible to conclude that these two formats can be used for different purposes, namely XBRL for analyzing financial statements, and SAF-T UA for conducting e-audits

of taxpayers by the State Tax Service of Ukraine. The article has revealed the advantages and disadvantages of foreign software used by the tax services of European countries to conduct e-audits can be taken into account by developers of domestic software to create software products that are optimal in terms of functionality.

Thus, we have established that the electronic format of financial information SAF-T UA is used when conducting an electronic audit (e-audit) of taxpayers and can also be used to calculate the tax burden (tax return, tax efficiency ratio) used by the State Tax Service of Ukraine for the purpose of control completeness of accrual and payment of taxes and fees to the state budget.

## ADDITIONAL INFORMATION

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## ЦИФРОВІ ФОРМАТИ ПРЕДСТАВЛЕННЯ ФІНАНСОВОЇ ІНФОРМАЦІЇ ЯК БАЗА ДЛЯ ПРОВЕДЕННЯ АНАЛІЗУ Й АУДИТУ ДІЯЛЬНОСТІ СУБ'ЄКТА ГОСПОДАРЮВАННЯ

Епоха цифровізації суспільних відносин усе більше впливає на засоби представлення інформації про господарську діяльність суб'єкта господарювання, зокрема фінансову в умовах всесвітньої пандемії, зумовленої глобальним вірусом COVID-19. Усе частіше в нашому середовищі відчувається перехід від паперових носіїв інформації до електронних. Не є виключенням і фінансова інформація, яку генерують суб'єкти господарювання й в Україні, й у світі загалом.

Метою дослідження є систематизація існуючих цифрових форматів представлення фінансової інформації як бази для проведення аналізу та аудиту діяльності в Україні суб'єкта господарювання.

Базою дослідження є методичні рекомендації з використання Таксономії UA XBRL МСФЗ, інструкція з перегляду української МСФЗ-таксономії, спеціалізовані програмні продукти, законодавчі акти України. Використано методи: графічний (для унаочнення результатів проведеного дослідження), групування (для систематизації переваг та недоліків програмного забезпечення, що використовують податкові служби для проведення е-аудиту).

Проаналізовані цифрові формати представлення фінансової інформації, що виступають базою для проведення аналізу й аудиту діяльності суб'єкта господарювання, наведено структуру й надано характеристику нормативно-правового забезпечення розкриття фінансової інформації в електронному форматі XBRL в Україні, здійснено порівняльний аналіз фінансової інформації в цифровому форматі XBRL та SAF-T UA.

Визначено, що як базу для проведення аналізу фінансової інформації в електронному форматі XBRL можна використовувати із застосуванням спеціального програмного забезпечення, наприклад, для оцінки фінансового стану, розрахунку показників фінансової стійкості, ліквідності, платоспроможності, ділової активності, прибутковості суб'єкта господарювання тощо. Доведено, що електронний формат фінансової інформації SAF-T UA застосовується під час проведення електронної перевірки (e-audit) платників податків, а також може бути використаний для розрахунку податкового навантаження (податкової віддачі, коефіцієнта податкової ефективності), що застосовується органами Державної податкової служби України з метою контролю повноти нарахування й сплати відповідних податків та зборів до державного бюджету.

**Ключові слова:** цифрові формати, XBRL, SAF-T, аналіз, аудит, фінансова інформація, суб'єкти господарювання

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