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# INTELLECTUAL CAPITAL VALUATION UNDER THE EU DIGITAL STRATEGY

*The research explores the priorities of the EU Digital Strategy related to the use of intellectual capital, assessing its value as a key resource for innovation, corporate value creation, sustainable growth, and ensuring competitiveness. The hypothesis posits that the introduction of European approaches to the assessment of intellectual capital, aligned with the objectives of the EU Digital Strategy, will enhance the innovation potential, competitiveness, and economic resilience not only of EU member states but also of Ukraine by integrating these practices into digital transformation policies. The research methodology is based on systematic analysis, synthesis, detailing, analogy, the hypothetical-deductive method, comparison, and observation. The research results demonstrate that intellectual capital is a multifaceted and debated concept, playing a crucial role in shaping enterprise value and serving as an important indicator of its performance. However, its intangible nature, diverse*

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# ОЦІНКА ІНТЕЛЕКТУАЛЬНОГО КАПІТАЛУ В РАМКАХ ЦИФРОВОЇ СТРАТЕГІЇ ЄС

*Досліджено пріоритети цифрової стратегії ЄС, пов'язані з використанням інтелектуального капіталу, оцінюванням його вартості як ключового ресурсу для інновацій, створення корпоративної вартості, сталого зростання та забезпечення конкурентоспроможності. Висунуто гіпотезу, що запровадження європейських підходів до оцінювання інтелектуального капіталу, що відповідають цілям цифрової стратегії ЄС, сприятиме підвищенню інноваційного потенціалу, конкурентоспроможності й економічної стійкості не лише країн – членів ЄС, але й України завдяки інтеграції цих практик у політику цифрової трансформації. Методологія дослідження базується на системному аналізі, синтезі, деталізації, аналогії, гіпотетично-дедуктивному методі, порівнянні, спостереженні. Результати дослідження демонструють, що інтелектуальний капітал є багатогранним та дискусійним поняттям, він відіграє ключову роль у формуванні вартості підприємства та є важливим індикатором ефективності його*

*characteristics, and manifestations complicate the processes of evaluation, accounting, reporting, analysis, and decision-making. The list of intellectual capital components has been expanded to include human, structural, relational, innovative, social, emotional, digital, customer, ecological capital, artificial intelligence capital, digital reputation capital, and intellectual property. The evaluation methodology should be flexible and adaptive, under the recognition characteristics of each component. Thus, key methods, such as market-based, cost-based, and income-based approaches, have been supplemented with non-financial, integrative, and IT-based methods to ensure the accuracy and transparency of intellectual capital evaluation for more informed decision-making and sustainable growth in the digital economy. The novelty of intellectual capital evaluation in the context of the EU Digital Strategy is based on aspects such as the integration of digital indicators to assess intangible assets, the expansion of accounting for non-financial components (e.g., human and relational capital), and the use of modern technologies such as blockchain and big data for asset identification and validation. Alignment with the goals of the EU Digital Compass 2030 and the integration of intellectual capital evaluation and disclosure into ESG reporting are the key to adapt Ukraine to European digital transformation standards, thereby accelerating EU integration and enhancing competitiveness.*

*Keywords:* intellectual capital, valuation, European Union, EU Digital Strategy, human capital, structural capital, relational capital, digital transformation, intangible assets, accounting, reporting, digitalization.

*діяльності. Однак його нематеріальна природа, різноманітність характеристик і проявів ускладнюють процеси оцінювання, обліку, звітування, аналізу та прийняття рішень. Перелік компонентів інтелектуального капіталу було розширено і виділено людський, структурний, реляційний, інноваційний, соціальний, емоційний, цифровий, клієнтський, екологічний капітал, капітал штучного інтелекту, капітал цифрової репутації й інтелектуальної власності. Методика оцінювання має бути гнучкою й адаптивною та відповідати особливостям визнання кожного компонента. Тому ключові методи, такі як ринкові, витратні та дохідні, були доповнені нефінансовими, інтегративними та методами на основі інформаційних технологій, щоб забезпечити точність та прозорість оцінки інтелектуального капіталу для більш обґрунтованого прийняття рішень і сталого зростання в цифровій економіці. Новизна оцінювання інтелектуального капіталу в контексті цифрової стратегії ЄС спирається на такі аспекти, як інтеграція цифрових індикаторів для оцінки нематеріальних активів, розширення обліку нефінансових компонентів, як-от людський, реляційний капітал та інші, використання сучасних технологій блокчейн і великі дані для ідентифікації та валідації активів. Відповідність цілям цифрового компаса ЄС 2030 та інтеграція оцінки й розкриття інтелектуального капіталу в ESG-звітність є ключовими для адаптації України до європейських стандартів цифрової трансформації, що сприятиме прискоренню інтеграції в ЄС та підвищенню конкурентоспроможності.*

*Ключові слова:* інтелектуальний капітал, оцінювання, Європейський Союз, Цифрова стратегія ЄС, людський капітал, структурний капітал, реляційний капітал, цифрова трансформація, нематеріальні активи, облік, звітність, цифровізація.

**JEL Classification:** O34, M21, M41, M49.

## Introduction

Assessment of intellectual capital is highly relevant in the modern context of digital transformation, which shapes the economic and social development of European Union countries. Intellectual capital, encompassing knowledge, skills, know-how, and relationships, has become a key resource for innovation, sustainable growth, and competitiveness in the digital economy. Within the framework of the EU's digital strategy aimed at creating an integrated digital market and accelerating technology adoption, proper valuation of intangible assets is a crucial element for making strategic decisions, attracting investments, enhancing competitiveness, and developing sustainable business models.

The dynamic nature of the digital economy and the current lack of unified assessment standards complicate the process of determining the value of intellectual capital, partly due to the multidimensionality of its components. Existing accounting standards largely fail to account for a significant portion of intellectual capital in financial reporting, as not all components meet the criterion of reliable measurement necessary for recognition as assets in the accounting and reporting system. Consequently, there is a growing demand for new approaches that can ensure reliable valuation of intellectual capital and its individual components. Research in this area focuses on harmonizing approaches to intellectual capital valuation, improving transparency in corporate reporting, and integrating innovative technologies, such as artificial intelligence and big data, for more effective management of intangible assets. This is essential for sustaining the development and competitiveness of any country on the global stage.

The European Union has declared its ambition for 80% of its population to acquire basic digital skills by 2030 and plans to allocate EUR 250 billion in digitalization investments under the Next Generation EU program (A Europe fit for the digital age, 2024).

The valuation of intellectual capital directly supports the achievement of the Sustainable Development Goals (SDGs) (The 17 GOALS, n. d.) by fostering innovation, promoting quality education, and advancing decent work and economic growth (SDGs 4, 8, and 9). By identifying and optimizing aspects such as knowledge, skills, and relationships, organizations can contribute to sustainable practices, equitable opportunities, and resilient economic systems.

The review of scientific sources reveals that one of the main research directions is the development and adaptation of methods for assessing intangible assets, which form the foundation of intellectual capital. Articles analyze various approaches, including market-based, cost-based, and income-based methods (Grosu et al., 2024), the application of which may depend on the specific context and characteristics of enterprises operating in individual EU countries (Paszko, 2020).

The study by Ramanauskaite and Rudzioniene (2013) established a link between intellectual capital and the innovative capacity of enterprises in the digital environment. The development of artificial intelligence and big data analytics opens new opportunities for more accurate and prompter evaluation of intellectual capital (Irtyshcheva et al., 2020). Specific studies, such as those by Pelle and Vegh (2015), examine aspects of applying modern technologies for measuring the knowledge and skills of personnel, as well as evaluating the effectiveness of interaction between companies and their partners. All of this underscores the role of digital transformation not only in increasing the value of intellectual capital (Yilmaz, 2024) but also in its evaluation potential (Umantsiv, 2023).

In parallel, some studies address the formation of policies aimed at enhancing human capital to overcome the challenges of the digital divide among EU member states. For instance, Svarc et al. (2021) investigated the

association of National Intellectual Capital (NIC) with the national digital transformation readiness of the EU's member states.

Intellectual capital is viewed as a key factor explaining the difference between the market value and the book value of companies, driving the development of models for its classification and assessment (Pfeil, 2023). The issue lies in the absence of a unified approach to intellectual capital evaluation, which complicates its integration into financial reporting (Martins & Albino, 2024) and prevents comprehensive disclosure in companies' reports (Umantsiv & Kotsupal, 2022).

A review of the literature confirms the positive impact of intellectual capital on financial performance, market value (Cabrilo et al., 2024), competitive advantages of enterprises (Belimenko, 2024), and brand value (Iankovets, 2019). Various approaches are applied in the studies, including indicator systems, intellectual property management, and assessment methods, yet gaps remain, particularly in exploring industry-specific characteristics, long-term impacts, and mechanisms of transforming intellectual capital into corporate value (Malikah & Nandiroh, 2024). Key research areas include the standardization of assessment methodologies (Vo & Tran, 2024), the impact of digital technologies on intangible assets (Vorobei, 2018), as well as the integration of results into corporate reporting (Odobasa & Marosevic, 2023) and strategic management (Mazaraki et al., 2022).

Contemporary scientific literature emphasizes the interaction between artificial intelligence (AI) and intellectual capital (Ilyina, 2023), particularly the evaluation of intangible assets created by AI and their impact on productivity and value (Heidor & Kashpruk, 2022). Despite the growing interest in the technical aspects of AI, there is a significant need to develop methods for financially assessing intangible assets, which are becoming increasingly important in the economy (Grosu, 2024).

The unresolved issue of intellectual capital evaluation lies in the lack of unified standards and methodologies that would account for the dynamic nature of the digital economy and the specifics of intangible assets. The complexity of measuring components such as knowledge, innovation potential, or stakeholder relations complicates their integration into financial and non-financial reporting. Additionally, challenges associated with technological changes, such as process automation, and regulatory requirements, including data protection (GDPR), further complicate the effective use of intellectual capital to achieve the goals of the EU's digital strategy, highlighting the relevance of this study.

The aim of the research is to highlight the features and key methodological approaches to evaluating intellectual capital in European countries within the context of the EU Digital Strategy. The article analyzes the role of intellectual capital in the development of an innovative economy, examines the impact of digital technologies on intangible assets, and outlines prospects for harmonizing evaluation methodologies at the EU level.

The aims of the article are as follows:

- to review scientific sources that explore approaches to evaluating intellectual capital within the framework of the EU Digital Strategy;

- to identify the main methods of intellectual capital evaluation, their adaptation to the requirements of the digital economy, and the influence of modern technologies;
- to analyze the role of the EU Digital Strategy and its key objectives related to intellectual capital;
- to assess the potential for implementing European practices in Ukraine, taking into account the specificities of the national economy and prospects for integration into the EU's single digital market.

Research Hypothesis. The use of European approaches to evaluating intellectual capital, which consider the priorities of the EU Digital Strategy, will contribute to enhancing the innovation potential, competitiveness, and economic resilience of both EU member states and countries aspiring to integration, including Ukraine.

Methodological Framework. The reseach is based on general scientific and specialized methods, ensuring a systematic analysis of intellectual capital as an evaluation object within the context of the EU Digital Strategy. A hypothetico-deductive method was used to test the hypothesis concerning the impact of digitalization, along with methods of analysis, synthesis, and detailing to explore approaches to evaluating intellectual capital. Comparative and observational methods allowed for identifying key factors influenced by the EU Digital Strategy, while the analogy method facilitated a comparison of national specificities and the experience of European countries. A systematic approach, induction, and deduction formed the basis for drawing conclusions about the advantages of digitalization and proposing improvements to intellectual capital evaluation methods in the context of the EU Digital Strategy.

The 4 sections of the main part of the article consistently addresses the following issues: definition and components of intellectual capital, EU Digital Strategy and key objectives related to intellectual capital, methods for assessing intellectual capital, and best European practices for Ukraine.

## 1. Intellectual capital: definition and components

The concept of measuring intellectual capital emerged with the transition to a knowledge economy, where intangible assets became the main drivers of value creation. Intellectual capital is a multifaceted and debated concept, resulting in various perspectives not only on its essence but also on the definition of its components and the possibilities for their assessment. In generalized terms, intellectual capital is associated with concepts such as value (Malikah & Nandiroh, 2024), the totality of intellectual resources and the capacity to realize them (Irtyshcheva et al., 2020), intangible assets (Pfeil, 2023), or intangible resources (intangible growth factors) that enhance business value (Semenova et al., 2021) and build competitive advantages (Vo & Tran, 2024). Unlike physical or financial capital, intellectual capital encompasses knowledge, skills, innovation, and relationships that are not directly reflected in accounting systems or fully disclosed in reports, yet are critically important for the resilience, competitiveness, and sustainable development of business entities.

It is often claimed that intellectual capital represents intangible assets that contribute to the value and competitive advantage of an organization. This assertion is valid if intangible assets are viewed more broadly than as mere accounting objects. A thorough analysis of the requirements of International Accounting Standards, particularly IAS 38 "Intangible Assets" (IAS 38, n. d.), reveals that intellectual capital, from the perspective of accounting and reporting, is not equivalent to intangible assets. These concepts are not synonymous. While certain components of intellectual capital may be recognized as intangible assets and subject to accounting and disclosure, not all components fit this criterion. Therefore, it is crucial to analyze intellectual capital through its individual components.

Traditionally, intellectual capital is divided into three main types:

*Human capital* encompasses the knowledge, skills, experience, and competencies of employees, forming the core resource of any organization. This includes not only technical abilities but also creativity, innovation, and adaptability to change. Human capital is considered a dynamic asset that requires constant development through training, education, and employee motivation (Irtyshcheva et al., 2020). Companies invest in this capital by creating favorable conditions to attract talent and ensure high productivity.

*Structural capital* consists of intangible assets and other resources that remain within the company regardless of its employees. This includes internal processes, information systems, corporate culture, databases, and know-how. Automated management systems, standardized operational procedures, and digital platforms serve as the foundation for increasing organizational efficiency. This component also encompasses innovative developments and mechanisms for implementing innovations that ensure the resilience and competitiveness of a business.

*Relational capital* reflects the value of a company's relationships with its external partners, clients, suppliers, and other stakeholders. This includes customer loyalty, brand strength, market reputation, and trust from partners. Relational capital is challenging to measure quantitatively, but its importance in strategic management cannot be underestimated, which is why its evaluation predominantly involves non-financial indicators.

These categories are quite generalized and should be complemented to account for the modern multifaceted and dynamic changes in the era of the EU Digital Age. Therefore, we propose to outline additional components of a company's intellectual capital:

*Innovation capital, creative or renewal capital* (Cabrilo et al., 2024) refers to a company's ability to create new digital products, services, business models, or processes based on cutting-edge technologies, as well as its investments in research and development (R&D), patented technologies, inventions, and other innovations. In the context of digital transformation, companies actively implementing innovations can adapt more quickly to market changes and create unique competitive advantages. Effective management of this capital includes fostering an innovative culture and creating conditions for the generation of new ideas.

*Social capital* reflects the quality and intensity of social connections both within the organization (team spirit, collaboration, support, and trust among employees) and outside it (relationships with the community, partners, and stakeholders). A high level of social capital ensures effective knowledge sharing, enhances team cohesion, and strengthens the company's reputation.

*Emotional capital* defines the level of employees' emotional engagement with their work and the company's ability to manage emotions within the organizational environment. It includes employee satisfaction, loyalty, energy, and a sense of purpose in their work. Companies with high emotional capital create an environment where employees feel valued, boosting productivity and reducing turnover rates.

*Digital capital* encompasses all the company's digital assets, including software products, platforms, digital infrastructure, and the use of big data (Yilmaz, 2024). This component is becoming increasingly critical in today's world as companies actively integrate technologies into their processes to remain competitive. Specifically, it has been proven that utilizing big data analytics allows companies to make more informed decisions (Semenova, 2024).

*Artificial intelligence capital* includes tools and algorithms implemented for process automation, forecasting, and decision-making. This component is particularly relevant for investment allocation and monitoring their effectiveness.

*Customer capital* is characterized by knowledge about customers, their needs and expectations, and their loyalty. It helps retain customers and increase their average revenue for the company while reducing the costs of acquiring new customers.

*Digital reputation capital* includes the organization's online image, formed through interactions with customers, partners, and the public in the digital space. It can be highlighted as a separate category.

*Ecological capital* is a critical component of intellectual capital that reflects organizations' ability to implement environmentally friendly technologies aimed at reducing the carbon footprint and using resources efficiently. Within the EU's "Green Initiative", it includes the development of renewable energy sources, circular economy, and ecological innovations. Ecological capital not only enhances companies' competitiveness but also contributes to achieving green transition and sustainable development goals by integrating environmental aspects into digital strategies and business processes.

*Intellectual property*, for the purposes of evaluation and protection, should be distinguished from the entirety of intellectual capital. It includes patents, copyrights, trademarks, and other forms of intangible assets. Intellectual property ensures the uniqueness of a company's products or services and creates barriers for competitors. This component is recognized as an intangible asset under accounting standards, making it important to separate it from Innovation capital.

The distinction of these components may be subject to further scientific discussion; however, it is evident that evaluation tools must be as flexible and diverse as the concept of intellectual capital itself. The identified

components form a comprehensive understanding of intellectual capital, providing a foundation for its in-depth analysis and effective evaluation.

## 2. EU Digital Strategy: Key Objectives Related to Intellectual Capital

The EU Digital Strategy is a comprehensive framework aimed at positioning the European Union as a leader in the global digital economy while ensuring inclusivity, sustainability, and innovation (EU Digital Strategy, 2025). Intellectual capital plays a central role in achieving the strategy's objectives, as it underpins the development and effective use of digital technologies. Key objectives linked to intellectual capital include (A Europe fit for the digital age, 2024):

*Empowering people with digital skills*. The EU strives to bridge the digital skills gap by equipping citizens with the competencies necessary to thrive in the digital age. Investments in human capital through training programs, lifelong learning initiatives, and educational reforms will prepare a digitally skilled workforce capable of leveraging and enhancing intellectual capital.

*Fostering innovation and research*. The EU prioritizes research and innovation to enhance its global competitiveness. Initiatives such as the Horizon Europe program support the development of advanced technologies, including artificial intelligence, quantum computing, and big data analytics. Modern technologies increase intellectual capital by enabling better use of data and fostering knowledge creation (Svarc et al., 2021).

*Enhancing digital infrastructure*. The strategy emphasizes the development of secure, reliable, and scalable digital infrastructure to support intellectual capital. Investments in 5G, high-performance computing, and data centers create the structural capital necessary for effective knowledge exchange and collaboration.

*Promoting trust and transparency*. The EU aims to establish a regulatory framework that strengthens trust in digital technologies and promotes the ethical use of data. By protecting intellectual property and ensuring transparency in data management, the strategy supports the sustainable growth of intellectual capital.

*Building a single digital market*. Facilitating knowledge exchange and collaboration among Member States enhances relational capital by uniting businesses, research institutions, and governments into a cohesive structure.

*Sustainability through digital transformation*. Digital technologies are viewed as mechanisms for achieving green transition goals. The integration of intellectual capital, particularly in innovation and process optimization, supports the development of sustainable solutions aligned with climate objectives.

The declared goals demonstrate that intellectual capital is not only the cornerstone of the EU Digital Strategy but also a critical resource for sustaining technological leadership, driving economic growth, and fostering social cohesion. Through targeted policies and investments, the EU aims to maximize the potential of intellectual assets, ensuring long-term sustainnability and prosperity in a rapidly evolving digital landscape (Digital Decade 2024 report calls for

strengthened collective action, 2024). The implementation of digital technologies is not merely a technological process but also a social one, essential for the development of modern society (Svarc et al., 2021).

Expanding the benefits of the Digital Single market to the Eastern Partnership countries, including Ukraine, is also crucial. Through the EU4Digital initiative, the EU plans to support the development of digital economies, cybersecurity, and transformation in the region (EU Digital Strategy, 2025).

The assessment of intellectual capital is key to implementing the EU Digital Strategy, as it enables the effective measurement, management, and utilization of intangible assets that form the foundation of digital transformation (Intellectual Property in the Digital Age, 2023). First, this supports the development of digital skills, one of the four main benchmarks of the strategy. Measuring human capital helps determine the population's level of digital literacy and identify gaps in education that require investment. Second, evaluating organizational and structural capital allows businesses to understand their strengths in innovation, data management, and adaptation to technological changes, enhancing their competitiveness in the digital economy and driving the adoption of advanced technologies such as artificial intelligence and big data. Third, assessing social capital enables public and private organizations to build trust in digital services and ensure transparency. In general, the assessment of intellectual capital is vital for implementing the EU Digital Strategy, as it helps make informed decisions on resource allocation, policy formation, and ensuring the balanced development of digital infrastructure and society.

## 3. Methods for assessing intellectual capital

The evaluation and disclosure of intellectual capital face a range of common challenges. It is difficult to identify and measure its elements, which complicates their integration into reporting. The lack of standardization in approaches to disclosing information about intellectual capital leads to significant discrepancies between companies and countries. Moreover, the strategic importance of intellectual capital is often underestimated, limiting attention to this issue at the level of corporate practice.

The assessment and disclosure of information about intellectual capital within the frameworks of IAS 38 (n. d.), the Conceptual Framework for Financial Reporting (2018), Directive 2013/34/EU (2013), Directive 2014/95/EU (2014), and the Corporate Sustainability Reporting Directive (CSRD) (Directive 2022/2464/EU, 2022) encounter several challenges. IAS 38 focuses on intangible assets that meet recognition criteria, making it difficult to reflect broader aspects of intellectual capital, such as human or organizational capital. The Conceptual Framework for Financial Reporting provides general principles for preparing reports but does not cover specific methodologies for assessing intangible assets. Directive 2013/34/EU and Directive 2014/95/EU establish requirements for non-financial reporting, but their implementation is uneven across EU countries, especially for small and medium-sized enterprises. CSRD, focusing on integrating sustainability into reporting, adds complexity due

to its high requirements for data and resources. Overall, these standards require harmonization and improvement in approaches to ensure accuracy and transparency in the disclosure of intellectual capital.

From an accounting and reporting perspective, intangible assets are a key component of intellectual capital that can be recognized in financial statements under certain conditions. These include patents, copyrights, trademarks, know-how, and software, which have clearly defined value and the ability to generate economic benefits. However, many elements of intellectual capital, such as human capital or organizational culture, are typically not reflected on the balance sheet due to difficulties in their valuation. Intangible assets are reported in accordance with IAS 38 and require regular revaluation and impairment analysis. This poses a challenge for managers in ensuring the proper and transparent evaluation and disclosure of intellectual capital to demonstrate its true impact on a company's financial performance.

Key IAS 38 "Intangible Assets" requirements for assessing intellecttual capital (IAS 38, n. d.):

- Recognition of an intangible asset according to criteria: the asset must provide future economic benefits, be identifiable and controlled by the company, and its cost must be reliably measurable.
- Initial measurement at cost, which includes expenses for creating or acquiring the intangible asset.
- Subsequent measurement relies on either the cost model, where the asset is carried at cost less accumulated amortization and impairment losses, or the revaluation model, where the asset can be revalued to fair value if an active market exists.
- Limitations on recognizing intellectual capital: human capital, organizational culture, and company reputation (goodwill) usually do not meet the criteria for separate recognition as assets due to difficulties in their identification and measurement and, therefore, are not reflected in financial statements and accounting systems.
- Disclosure requirements: notes to financial statements must include information about the composition of intangible assets, valuation and amortization methods, and potential risks associated with their use.

IFRS provides a foundation for assessing intellectual capital but focuses on objectively measurable aspects, leaving non-financial components of intellectual capital often strategically significant for business overlooked.

The CSRD, adopted by the EU in 2022, significantly expands the requirements for companies' non-financial reporting, particularly regarding the disclosure of intellectual capital information. It addresses previous shortcomings of IFRS in assessing non-financial assets, especially those of strategic importance for long-term company development. CSRD emphasizes the assessment of human capital, measuring employees' contributions, skills, and corporate culture's role in the organization's overall value. Companies are required to detail human resource management strategies, talent development, and innovation support. CSRD also considers the modern development of the digital economy, particularly assets related to

data, digital platforms, and artificial intelligence. Digital assets are now recognized as an important part of intellectual capital.

A comprehensive review of sources allowed the generalization and systematization of methodological approaches to assessing intellectual capital. Traditional market, cost, and income methods have been supplemented by non-financial, integrative, and IT-based methods – see *Table*.

*Table*

Methodical approaches to intellectual capital valuation

| Advantages | Characteristics | Description of methods |
|---|---|---|
| Market methods | Methods for evaluating intellectual capital based on market indicators are aimed at analyzing the relationship between intangible assets and the organization's financial or market performance. These methods help determine the value of intellectual capital by assessing its impact on the company's market value, stock price, or competitive position. | *Tobin's Q Method*: Compares the company's market value with the value of its assets. A high coefficient indicates significant intellectual capital.<br>*Market Capitalization Method*: Determines the value of intellectual capital as the difference between the company's market capitalization and its net tangible assets.<br>*Excess Earnings Method*: Based on the analysis of the company's earnings exceeding normal returns that could be generated from its tangible assets. It identifies what portion of earnings is generated by intangible assets and intellectual capital<br>*Premium to Share Value Method*: Compares the share value of companies with similar tangible assets but different levels of intellectual capital. It is used to determine how additional intellectual capital increases share prices |
| Costing methods | Evaluation of intellectual capital is based on the costs incurred for its creation, development, or replacement | *Replacement Cost Method*: Determines how much it would cost to restore intellectual capital in case of its loss.<br>*Cost Accumulation Method*: Accounts for all expenses related to the creation of intangible assets of intellectual capital, such as research, staff training, brand development, and more |
| Income methods | Based on the analysis of future income generated by intellectual capital | *Discounted Cash Flow (DCF) Method*: Evaluates intellectual capital as an income stream generated by intangible assets, taking discounting into account.<br>*EVA (Economic Value Added) Method*: Calculates the extent to which intellectual capital contributes to creating value beyond operational expenses and investments |
| Non-financial methods | Grounded in qualitative analysis and descriptions of intangible organizational aspects, these methods help identify, structure, and systematize human, organizational, and customer capital | *Balanced Scorecard (BSC)*: Designed to assess organizational performance through measurements in four areas: finances, customers, internal business processes, and learning and growth. Intellectual capital is evaluated through indicators related to human capital development (staff training, qualification levels), processes (innovation, business efficiency), and customer interactions (satisfaction, loyalty).<br>*Intellectual Capital Mapping*: Allows visualization of intellectual capital components and their interconnections.<br>*Skandia Navigator Model*: Includes five components: financial focus, customer focus, process focus, development and learning, and human capital.<br>*Intangible Assets Monitor*: Focuses on three aspects: the growth of intangible assets, their renewal, and the efficiency of their use.<br>*Innovation Indicators*: Assess a company's ability to innovate by analyzing patent activity, the number of new products, and participation in research programs |

*End of Table*

| Advantages | Characteristics | Description of methods |
|---|---|---|
| Integrative methods | Include approaches that combine quantitative and qualitative indicators | *Knowledge Balance Scorecard*: Utilizes financial and non-financial metrics to measure human, structural, and consumer capital.<br>*Skandia Navigator Method*: Analyzes intellectual capital through several components, such as financial performance, customer base development, human capital, and innovation potential.<br>*Comparative Analysis and Modeling Method*: Involves the use of benchmarking, where companies are evaluated based on their intellectual assets in comparison to competitors or industry standards, as well as the development of a model that accounts for the interrelations between various components of intellectual capital.<br>*Method of Combining Qualitative and Quantitative Approaches*: Combines quantitative methods for assessing intellectual capital (e.g., valuation of patents, licenses, income from intellectual property) with qualitative assessments, such as evaluating the company's level of innovation or its internal culture. This approach allows for considering both the financial and non-financial impact of intellectual capital on the business |
| Methods based on digital technologies | Utilize modern digital technologies in evaluation | *Big Data*: Analyzing large volumes of data to measure outcomes related to intangible assets.<br>*Artificial Intelligence*: Used to evaluate complex interrelationships between components of intellectual capital |

*Source:* compiled by the authors on the basis of (Malikah & Nandiroh, 2024; Yilmaz, 2024; Grosu et al., 2024; Fomina et al., 2021; Cabrilo et al., 2024; Pfeil, 2023; Semenova, 2017; Ramanauskaite & Rudzioniene, 2013; IAS 38, n. d.).

Each method has its advantages and limitations, so the choice depends on the specifics of the company, the purpose of the evaluation, and the availability of data. To ensure accuracy and completeness, a combination of several methods is often used. European countries actively apply integrative methods for assessing intellectual capital, which include both financial and non-financial indicators such as brand, patents, technologies, and knowledge (Paszko, 2020). Ukraine can adapt these models to local realities to evaluate the value of intangible assets, intellectual property, and human capital, which are key to the development of innovative sectors of the economy.

## 4. Best European Practices for Ukraine

The evaluation of intellectual capital as an object of accounting and reporting requires the integration of modern digital tools and methods that adequately reflect its value in the context of digital transformation. The experience of EU countries such as Sweden, the Netherlands, Estonia, and France demonstrates the effectiveness of using digital platforms, blockchain technologies, and integrating innovation indicators into national accounting and reporting strategies.

Adopting the principles of the EU Digital Compass 2030 allows the development of comprehensive methodologies for evaluating intellectual capital, contributing to sustainability, innovation, and compliance with environmental standards. These innovations enhance transparency, efficiency, and the social impact of intellectual capital in the context of the EU's digital economy.

Based on the conducted research, proposals have been formulated to improve approaches to evaluating intellectual capital as an object of accounting and reporting, considering the EU's digital strategy, the experience of member states, and Ukraine's national characteristics. These proposals include the following aspects (*Figure*).

*Integration of Digital Indicators*

- Evaluating an organization's online reputation through the analysis of social media and customer reviews.
- Measuring influence in digital networks using metrics such as the number of followers, audience engagement, or influence index.
- Collecting and analyzing data on customer experience, including satisfaction, loyalty, and repeat interactions.
- Assessing the level of technological adaptation, including the adoption of innovative digital solutions and process automation

*Expanding the Scope of Accounting*

- Representing human capital through quantitative and qualitative indicators, such as education levels, professional training, and employee competencies.
- Evaluating relational capital, including partnerships, stakeholder reputation, and the quality of external relations.
- Implementing dynamic metrics to monitor changes in knowledge, innovation levels, and digital skills.
- Integrating digital accounting standards that account for the speed of technology adoption and business adaptation to digital trends.

*Digital Identification of Assets*

- Using blockchain to record intellectual property rights, patents, and licenses.
- Analyzing big data to identify key intangible assets, such as employee knowledge and skills.
- Employing unique digital markers to identify and track intangible assets throughout their lifecycle.
- Ensuring transparency in reporting through automated processes for asset evaluation and validation

*Alignment with EU Objectives*

- Implementing eco-innovations as part of intellectual capital aligned with the EU Green Deal.
- Assessing the contribution of intellectual capital to sustainable development through the use of renewable resources and carbon footprint reduction.
- Integrating digital competencies into corporate sustainability strategies in line with the EU Digital Compass 2030 objectives.
- Developing evaluation methodologies that account for the social impact of intellectual capital, such as increasing access to digital technologies

*Disclosure in Non-Financial Reporting*

- Reflecting a company's innovation activity through intellectual capital indicators in ESG reports.
- Demonstrating the company's social impact through its contribution to human capital development and digital transformation.
- Disclosing data on intellectual assets that contribute to achieving environmental goals, such as the development of eco-friendly technologies.
- Integrating intellectual capital indicators to illustrate the company's long-term sustainability and competitiveness.

Improving approaches to intellectual capital valuation based on the EU experience

*Source:* compiled by the authors on the basis of EU Digital Strategy (2025); A Europe fit for the digital age (2024); IAS 38 (n. d.); Directive 2022/2464/EU (2022); Grosu et al. (2024); Pfeil (2023); Semenova et al. (2024); Svarc et al. (2021); Yilmaz (2024).

The proposed approaches would contribute not only to a more comprehensive representation of intellectual capital in reporting but also to aligning Ukraine with the requirements of the digital economy and EU strategies.

For Ukraine, it is essential to consider the key challenges and opportunities in the evaluation of intellectual capital that arise in the context of digital transformation and the development of advanced technologies such as artificial intelligence, big data, and blockchain. However, Ukraine must address several critical issues, including improving intellectual property protection legislation, enhancing access for small and medium-sized enterprises to advanced technologies, and reducing the digital divide between regions.

By integrating EU experience into the development of policies and practices for assessing intellectual capital, Ukraine can improve the management of innovative resources, creating conditions for the more efficient use of digital platforms and data. It is equally important to ensure a balance between technological development and ethical standards in this process, which would help Ukraine avoid potential risks such as privacy violations or misuse of intellectual property.

The integration of digital technologies into the processes of analyzing, evaluating, and accounting for intellectual capital opens new opportunities to enhance transparency, ensure better access to financing and investments, and strengthen the country's innovation ecosystem. Through the development of digital platforms and tools for monitoring intangible assets, Ukraine can optimize the management of intellectual resources, improve the efficiency of human capital and innovation utilization, and lay the foundation for attracting foreign investment, fostering the growth of technology startups, and expanding export potential.

This is particularly relevant in the face of military aggression, where technology transfers and the effective use of intellectual capital can strengthen Ukraine's defense capabilities, support the modernization of the military-industrial complex, and ensure the stability of critical infrastructure. During the post-war reconstruction period, the evaluation and development of intellectual capital will play a crucial role in creating a modern innovation-driven economy, attracting international aid and investors, and forming new competitive industries focused on high-tech exports.

## Conclusions

The research results have been identified contemporary approaches to evaluating intellectual capital in the EU, its impact on the digital economy and innovation development, and adaptive opportunities for Ukraine. These findings enable efforts to be directed toward improving the intellectual resource management system in Ukraine, supporting integration into the European community and digital transformation.

The evaluation of intellectual capital is a key factor in implementing the EU's digital strategy, as it fosters innovation-driven development, supports the digital transformation of businesses, and enhances the transparency of asset management. The ability to reliably measure and rationally utilize intangible resources, such as knowledge, technology, and data, forms the foundation for digital leadership, promotes the unification of corporate reporting, attracts investment, and supports the development of a single digital market. Therefore, intellectual capital assessment is one of the essential tools for achieving the strategic goals of the European Union in digitalization, social and economic development.

The list of components of intellectual capital has been expanded to include: Human, Structural, and Relational Capital; Innovation, Social, and Emotional Capital; Digital Capital; Artificial Intelligence Capital; Customer Capital; Digital Reputation Capital; Ecological Capital; Intellectual Property. The assessment toolkit should be as adaptable and diverse as the concept of intellectual capital itself. The identified components offer a comprehensive understanding of intellectual capital, laying the groundwork for its thorough analysis and effective evaluation.

Methodological approaches to evaluating intellectual capital based on market, cost, and income methods have been outlined and complemented by non-financial, integrative, and IT-based methods. All these approaches ensure greater accuracy, transparency, and objectivity in assessing the components of intellectual capital, which is vital for improving decision-making processes, optimizing resource allocation, and attracting investments.

The research confirmed that intellectual capital is a primary driver of innovation, enhances competitiveness, and ensures sustainable economic growth within the EU's digital strategy. This underscores the importance of integrating assessment results into strategic management and decision-making at the corporate and government levels.

The analysis demonstrated that adapting European practices for evaluating intellectual capital in Ukraine would improve the management of intangible assets, facilitate integration into the EU single digital market, and enhance the innovative capacity of enterprises. Recommendations have been proposed for implementing these practices, taking into account the specific features of the national economy.

Future research prospects will include more European case studies of implementing modern approaches to intellectual capital evaluation and conducting surveys of Ukrainian companies on their readiness to adopt such methods. It is also necessary to continue deepening research into Ukraine's integration opportunities into European digital programs and the single digital market through the implementation of intellectual capital evaluation standards. These directions will contribute not only to the theoretical justification but also to the practical realization of effective mechanisms for managing intellectual assets in the digital era.

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