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Methodological Approaches to Accounting and Analytical Support for Intangible Asset Management

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ABSTRACT

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The purpose of the study is to develop a comprehensive methodological approach to the accounting and analytical support of intangible asset management. The proposed solution integrates accounting, analytical evaluation, digital integration, and internal audit into a single functional system. Instead of using isolated accounting tools, the study focuses on a coordinated architecture that transforms fragmented information on software, patents, trademarks, licenses, databases, and digital products into a structured information base for managerial decision-making. The methodological framework is based on a systems approach, structural and functional analysis, methods of classification, modeling, integral assessment, and tabular design. The source base includes current regulatory and legal acts, methodological recommendations on accounting, works of domestic and foreign scholars, as well as modern practices of digital accounting for intellectual capital. The article substantiates an algorithm for the multicriteria recognition of intangible assets, improves the approach to determining their initial cost, proposes an adaptive depreciation mechanism, and develops a system of integral indicators for assessing the condition, informational relevance, and economic efficiency of their use. An architecture of the digital environment has been formed, consolidating ERP modules, intellectual property rights registers, analytical platforms, audit trail logs, and automated control procedures. The obtained results have practical significance for enterprises operating in various industries. The developed toolkit contributes to improving the reliability of accounting data, minimizing the risk of financial statement misstatements, strengthening control over intellectual resources, and supporting well-grounded strategic decisions regarding their commercialization. The scientific novelty lies in the integration of accounting, analytical, and control procedures within a unified model of intangible asset management adapted to the digital environment, which ensures the transition from fragmented accounting to systematic information support of managerial processes.

KEYWORDS

intangible assets, accounting, accounting and analytical support, enterprise management, internal audit, digitalization.



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Методичні підходи до обліково аналітичного забезпечення управління нематеріальними активами

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СТАТТЯ

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Метою дослідження виступає розробка цілісного методичного підходу до обліково-аналітичного забезпечення управління нематеріальними активами. Запропоноване рішення інтегрує бухгалтерський облік, аналітичне оцінювання, цифрову інтеграцію та внутрішній аудит в єдину функціональну систему. Замість використання ізольованих облікових інструментів увагу зосереджено на узгодженій архітектурі, яка трансформує фрагментовані відомості щодо програмного забезпечення, патентів, торговельних марок, ліцензій, баз даних і цифрових продуктів у структуровану інформаційну основу для прийняття управлінських рішень. Методологічну основу формують системний підхід, структурно-функціональний аналіз, методи класифікації, моделювання, інтегрального оцінювання та табличного проектування. Джерельну базу складають чинні нормативно-правові акти, методичні рекомендації з бухгалтерського обліку, праці вітчизняних і зарубіжних науковців, а також сучасні практики цифрового обліку інтелектуального капіталу. У статті обґрунтовано алгоритм багатокритеріального визнання нематеріальних активів, удосконалено підхід до формування їх первісної вартості, запропоновано адаптивний механізм амортизації та розроблено систему інтегральних показників для оцінки стану, інформаційної релевантності й економічної ефективності використання. Сформовано архітектуру цифрового середовища, що консолідує ERP-модулі, реєстри прав інтелектуальної власності, аналітичні платформи, журнали аудиторського сліду й автоматизовані контрольні процедури. Отримані результати мають прикладне значення для підприємств різних галузей. Створений інструментарій сприяє підвищенню достовірності облікових даних, мінімізації ризику викривлення звітності, посиленню контролю за інтелектуальними ресурсами та аргументованому прийняттю стратегічних рішень щодо їх комерціалізації. Наукова новизна полягає в інтеграції бухгалтерських, аналітичних і контрольних процедур у межах єдиної моделі управління нематеріальними активами, адаптованої до цифрового середовища, що забезпечує перехід від фрагментарного обліку до системного інформаційного супроводу управлінських процесів.



КЛЮЧОВІ СЛОВА

нематеріальні активи, бухгалтерський облік, обліково-аналітичне забезпечення, управління підприємством, внутрішній аудит, цифровізація.

1. Introduction

How businesses create and use intangible assets directly affects their competitive advantage. It also determines the speed of technological renewal and the ability to hold on to the market in the long run. Software, patents, trademarks, digital platforms, licenses, databases, and results of applied developments. It is in them that the main part of the economic potential of business is increasingly concentrated. Material resources, of course, have not gone anywhere. However, intellectual capital is now setting the tone. It determines the performance of the operating system, the level of innovation and the scale of future cash flows [1]. And this, in turn, tightens the requirements for accounting, analytics and internal control. Management decisions do not require scattered data, but a holistic information environment.

Intangible assets are created in different divisions, accumulate gradually, and their economic effect is felt only over time. But the trouble is that the current accounting practice is focused mainly on the formal recognition and reflection of value. The issues of analytical assessment, digital integration and system audit remain insufficiently developed. As a result, we have a methodological gap between the accounting registration of the object and its real contribution to the growth of the value of the enterprise. It is the overcoming of this gap that determines the formulation of the study. It also necessitates the development of a comprehensive methodological approach to accounting and analytical support for the management of intangible assets.

2. Literature Review

Podmeshalska Y. V. and Bakuta K. S. [16] in their scientific publication summarize the practice of accounting for intangible assets and describe in detail the procedure for their documentation. The authors convincingly show that the correct identification of the object determines the reliability of financial statements. At the same time, the issues of integration of accounting data with analytical management tools remained outside the scope of their study. intangible assets and proposes approaches to establishing useful lives. However, methods for assessing the economic performance of such assets have not been properly developed in this work. Bondarenko N. M. and Ilchak D. I. [2] investigate the organization of audit of intangible assets and detail the list of control procedures. However, the methodological relationship between audit and the system of management indicators is presented only fragmentarily.

Vasiurenko L. V. [17] analyzes the conceptual foundations of recognition and classification of intangible assets. Kozenkova V. D. [7] proposes models for estimating and forecasting their value. Chyzh V. and Pelykh V. [5] substantiate the analytical support of recognition and evaluation processes. Chuenkov A. A. [4] considers accounting and informational aspects of business value creation. Yankovska L. A. with co-authors [19] investigates the specifics of accounting in innovative enterprises. Yakubiv V., Maksymiv Y., Hryhoruk I. and Naida O. [18] highlight new approaches to accounting for digital assets. All this gives grounds to assert that it is advisable to conduct a study devoted to the development of an integrated methodological approach to accounting and analytical support for the management of intangible assets of the enterprise.

3. Problem Statement

The purpose of the article is to substantiate the methodological foundations of accounting and analytical support for the management of intangible assets of the enterprise and the assessment of the effectiveness of their use.

4. Methods and Materials

The methodological base of the article is built on a combination of several approaches. These are normative, analytical, calculation and system approaches to the study of intangible assets of the enterprise. To create an integral architecture of accounting and analytical support, the method of logical generalization was used. Structural and functional analysis made it possible to determine the relationship between accounting, internal audit and management analytics intellectual capital for

economic purposes. The calculation tools provide for the construction of integral indices. We are talking about the index of recognition, information relevance, condition and economic efficiency of intangible assets. To formalize accounting procedures, the method of modeling accounting entries is used. The matrix approach is also used to systematize control procedures and tabular design of the digital information environment.

The information base of the study is the provisions of national accounting standards. It includes methodological recommendations of the Ministry of Finance of Ukraine, scientific works of domestic and foreign authors, as well as modern practical materials on accounting for digital and intellectual assets.

5. Results and Discussion

The practice of structuring information on intangible assets in an enterprise determines not only the quality of accounting but also the level of manageability of intellectual capital. If the rights to software, trademarks, patents, digital platforms, domain names and the results of own developments exist separately from the management system, financial statements reflect only the formal part of the business value. hidden. Practice shows a fairly stable pattern. Intangible assets arise in different functional areas of the enterprise. The IT department creates software products, the marketing department forms brand resources, the legal department provides legal protection, and production services accumulate technological knowledge. In accounting, these objects should be presented as a single system. Not a list of documents, but a structured information array that relates ownership, economic utility, valuation parameters, depreciation rules, and performance indicators.

The first step is to create a multi-level register of intellectual resources. It includes assets that meet the characteristics of identification, controllability, the ability to generate future benefits and the possibilities of reliable measurement. But the problem is that these criteria are often evaluated intuitively. The same objects in one division are considered as expenses, and in the other as strategic assets. This is due to the fact that there is no formalized algorithm for decision-making [20]. To eliminate subjectivity, a justified step would be to apply the integral index of recognition of an intangible asset:

$$I_{NA} = \frac{w_1 K_{id} + w_2 K_{ct} + w_3 K_{eb} + w_4 K_{rv} + w_5 K_{lp}}{\sum_{j=1}^5 w_j} \quad (1)$$

where:

I_{NA} – integral index of compliance of an object with recognition criteria;

K_{id} – assessment of identification;

K_{ct} – assessment of the level of control over the asset;

K_{eb} – assessment of expected economic benefits;

K_{rv} – assessment of the reliability of value determination;

K_{lp} – assessment of legal protection;

w_j is the weighting factor of the corresponding criterion.

If the value of the indicator exceeds the established threshold, the object is included in the intangible assets. If the score is lower, the resource remains in the internal register for additional analysis, technical revision or legal registration. After establishing the criteria, it is necessary to organize the documentary movement of information [13]. Each asset is associated with a title document, a center of responsibility, an internal code, a sign of strategic significance, a method of formation and regulations for further control. The systematization of the outlined elements is presented in Table 1.

When the object is recognized, the system proceeds to the stage of cost measurement. It is here that the economic basis for further analysis is formed. The initial cost is not reduced to the amount of payment to the supplier. It includes the costs of legal registration, adaptation of the program code, testing, configuration, integration into the information infrastructure, consulting support and technical commissioning. If these components are not identified separately, the company either overestimates the costs of the period or underestimates strategic assets. For a multicomponent determination of the initial cost, it is proposed to use a model of the form:

$$PV_{adj} = (C_{acq} + C_{reg} + C_{dev} + C_{int} + C_{leg} + C_{test}) - R_{comp} + \Delta_{fx} \quad (2)$$

Table 1. Matrix of Multi-Criteria Identification and Documentary Evidence of Intangible Assets

Object of intellectual resource	Legal basis for the occurrence of	Functional Owner	Method of formation	Strategic purpose	A sign of commercialization	Privacy level	Control Document
Enterprise ERP Platform	License agreement	IT Department	Acquisition	Process automation	Internal use	Medium	Act of Introduction
Patent for a technological solution	Patent certificate	Technical Department	Own development	Technological advantage	Licensing	High	Patent dossier
Trademark	Certificate for the sign	Marketing Department	Registration	Brand positioning	Franchising	Medium	Certificate
Customer Database	Act of creation	Commercial Department	In-house development	Personalization of sales	Internal use	High	Access Regulations
Production know-how	Trade Secret Regulations	Production Department	Accumulation of knowledge	Technology optimization	Limited Transmission	High	Register of Secrets
Domain name and web platform	Registration Certificate	Digital Department	Acquisition	Digital Sales	Traffic monetization	Low	Registrar Certificate
Mobile app	Development Acceptance Act	IT Department	Outsourcing	Service interaction	Paid Features	Medium	Terms of reference
License to operate	Permitting document	Legal Department	Decoration	Market Access	Not applicable	Low	Registration file
Demand forecasting algorithm	Development Completion Act	Think tank	Own development	Solution Support	SaaS model	High	Codebase
Digital Content Archive	Copyright agreements	Marketing	Creation	Communication support	Reuse	Medium	Content Register

Source: Built by the author based on [3, 14].

where:

PV_{adj} – adjusted initial cost of an intangible asset;

C_{acq} – acquisition or creation costs;

C_{reg} – costs for state registration of rights;

C_{dev} – revision and configuration costs;

C_{int} – the cost of integration with information systems;

C_{leg} – legal support costs;

C_{test} – testing and acceptance costs;

R_{comp} – the amount of compensation, discounts and grant reimbursement;

Δ_{fx} – exchange rate adjustments for foreign exchange transactions.

This design provides a reflection of the full investment cycle of asset formation. This is especially true for software products, e-commerce platforms, and objects created with the participation of external developers. In these cases, the economic essence of the asset is formed gradually, and not at the time of a one-time purchase. After establishing the initial cost, the useful life is selected. Here, the decision is made not according to a template, but taking into account technological obsolescence, intensity of operation, regulatory restrictions, prospects for modernization and the risk of loss of legal protection. For digital assets, by the way, technological depreciation sometimes occurs faster than the legal term of the right [12]. These solutions require a separate adaptive model for calculating depreciation.

$$A_t = \frac{PV_{adj} - RV}{T} \cdot K_{tech} \cdot K_{use} \cdot K_{risk} \quad (3)$$

where:

A_t is the depreciation accrual for the period;

PV_{adj} – adjusted initial cost;

RV – liquidation value;

T is the base useful life;

K_{tech} – technological aging coefficient;

K_{use} – coefficient of intensity of use;

K_{risk} – legal and market risk ratio.

The application of this formula forms a flexible shock-absorbing mechanism. If the asset is used more intensively than expected, or loses its relevance due to the emergence of new technologies, the amount of depreciation is automatically adjusted.

The next step is to test for decreasing utility. The company compares the book value with the current estimate of the expected economic effect. If the commercial potential is reduced, a depreciation reserve is formed. This is necessary for forecasting algorithms, mobile applications, marketing platforms, and patents sensitive to technological changes [11, p. 377]. The methodology of valuation, depreciation and reporting of intangible assets is systematized in Table 2.

Table 2. Regulations for Parametric Valuation, Depreciation and Reporting of Intangible Assets

Life cycle stage	Analytical procedure	Information parameters	Responsible Center	Management decision	Documentary evidence	Reflection in reporting	Control action
Initial recognition	Cost identification	Investment structure	Accounting	Value formation	Capitalization calculation	Initial cost	Completeness check
Setting a deadline	Expert assessment	Technological cycle	Profile Department	Determination of the term	Technical conclusion	Reporting Notes	Approval of the management
Depreciation	Adaptive calculation	Adjustment factors	Accounting	Cost allocation	Depreciation statement	Operating expenses	Automatic reconciliation
Utility monitoring	Benchmarking	Potential for generating benefits	Financial Analyst	Initiating the test	Analytical reference	Cost adjustment	Checking assumptions
Revaluation	Fair value measurement	Expert assumptions	Chief Financial Officer	Grade adjustments	Appraiser's report	Revaluation reserve	Peer review
Write-off	Termination of recognition	Residual value	Commission	Closing an object	Act of withdrawal	Other expenses	Legal due diligence
Disclosure	Preparation of explanations	Asset Movement	Accounting	Formation of notes	Worksheets	Reporting Notes	Logical control
Audit	Validation of indicators	Data consistency	Internal auditor	Confirmation of authenticity	Audit file	Management Explanation	Testing procedures
Archiving	Preservation of evidence	Electronic package	Administrator	Long-term storage	Archive Register	Not applicable	Access control
Re-evaluation	Revision of assumptions	Updating parameters	Finance Committee	Policy adjustments	Minutes of the meeting	Updated Notes	Methodological audit

Source: Built by the author based on [2; 12; 15].

Information on intangible assets acquires managerial value only when the accounting rules are formalized in the order on accounting policy. This document fixes the recognition criteria, the procedure for capitalization, the list of eligible costs, depreciation models, revaluation conditions, materiality thresholds, methods of testing for impairment, routes of documentary approval and the limits of user liability [8, p. 377]. If these parameters are not defined, the accounting system reacts to events situationally, and not methodically.

A separate component concerns digital infrastructure. ERP modules record primary transactions, automated ledgers accumulate legal data, BI platforms aggregate analytical information, and audit logs track all changes in asset parameters. Intangible assets, in fact, cease to be static balance sheet items. They are transformed into dynamic information objects for which the history of changes, legal status, utility forecast and commercial use scenarios are available. The level of suitability of the information environment for decision-making is proposed to be assessed using the integral coefficient of information relevance:

$$R_{info} = \frac{\alpha C_{cmp} + \beta C_{tim} + \gamma C_{acc} + \delta C_{int} + \varepsilon C_{sec}}{\alpha + \beta + \gamma + \delta + \varepsilon} \quad (4)$$

where:

R_{info} – coefficient of information relevance;

C_{cmp} – completeness of information;

C_{tim} – timeliness of updates;

C_{acc} – reliability of data;

C_{int} – the level of integration of systems;

C_{sec} – security of information flows;

$\alpha, \beta, \gamma, \delta, \varepsilon$ are the weighting factors of the criteria.

The closer the indicator value is to the maximum limit, the higher the quality of information support for the management of intangible assets. This, in our opinion, creates a quantitative basis for assessing the digital maturity of the accounting system [3]. The practical architecture of the digital accounting and analytical environment is presented in Table 3.

Table 3. Architecture of the Digital Accounting and Analytical Environment for Enterprise Intellectual Capital Management

Information system component	Functional role	Data sources	Analytical Products	Responsible user	Access control	Frequency of actualization	Managerial appointment	Integration communication
ERP Accounting Module	Registration of business transactions	Primary documents	Posting registers	Accountant	Role model	Constantly	Formation of credentials	General ledger
Register of Intellectual Property Rights	Legal monitoring	Contracts, certificates	Legal status maps	Lawyer	Personalized access	By event	Control of the validity of rights	Legal Archive
BI Analytics	Data consolidation	ERP and Registries	Dashboard, KPI	Financial Analyst	Authorized access	Regulatory	Support for management decisions	Data Warehouse
Electronic archive	Preservation of evidence	Scanned copies and files	Documentary packages	Administrator	Encryption	Constantly	Evidence base	Document management system
Calendar of legal protection	Time Monitoring	Register of rights	Automatic messages	Legal Department	System notifications	Daily	Renewal of rights	Postal system
Utility Testing Module	Assessment of economic potential	Financial projections	Scenario models	Chief Financial Officer	Restricted access	Regulatory	Depreciation decisions	Analytical base
Audit Trail Journal	Change tracking	System logs	Activity reports	Internal auditor	Indestructible Record	Constantly	Modification control	Logging server
Strategic Monitoring Panel	Visualization of intellectual capital	Consolidated data	Strategy Maps	CEO	Individual access	Regulatory	Assessment of competitive advantages	Executive Dashboard
Budgeting module	Cost planning	Depreciation models	Budget scenarios	Planning and Economic Department	Role-based access	Regulatory	Financial planning	Budget system
API Interface	Data exchange	External systems	Synchronized recordings	IT Architect	Security Protocols	Automatic	Platform Integration	Enterprise Data Bus

Source: Built by the author.

When all the listed components function in concert, the enterprise receives not a set of disparate registers, but an integral system of intellectual capital management. The methodological approach proposed in this part of the study is based on the integration of accounting procedures, analytical calculations and internal audit. An intangible asset is perceived here not as a static unit of accounting, but as an economic resource with its own life cycle, risk system, profitability parameters and managerial significance [9, p. 42]. The initial condition of analytical research is the correct reflection of transactions on accounting accounts. Without this, any further coefficients lose their credibility. But the problem is that accounting for intangible assets covers various types of economic events: acquisition, creation, modernization, testing for decreasing utility, revaluation and write-off. For each transaction, a separate correspondence of accounts is formed (Table 4).

Table 4. Accounting entries for the formation and commissioning of intangible assets

Business transaction	Debit	Credit	Primary document	Managerial goal	Result for analytics
Software purchases are displayed	154	631	Account, act	Formation of capital investments	Cost accumulation
Legal expenses are included in the value of the asset	154	685	Service Act	Clarification of the initial cost	Full capitalization
Testing costs are reflected	154	631	Test Act	Preparing for use	Expansion of investments
The facility was put into operation	125	154	Act NA-1	Getting Started with Use	Object formation
Registered trademark	123	154	Certificate	Legal protection of the brand	Creating a brand asset
Created a database in-house	127	154	Development Completion Act	Development capitalization	Recognition of a digital resource
Patent obtained as a contribution to capital	124	46	Appraisal Act	Formation of the authorized capital	Asset expansion
The license obtained free of charge was recognized	127	424	Act of acceptance	Displaying a free resource	Asset growth

Source: Built by the author.

After the initial recognition, the asset enters the operational stage, and the accounting system begins to reflect the process of gradual transfer of its value to costs, changes in utility and cessation of use. It is this stage that forms the main analytical information for assessing economic performance. If accounting entries are made without taking into account the real dynamics of technological obsolescence, the reporting retains formal accuracy, but loses its economic meaning. Then the book value remains, and the usefulness of the asset is already significantly reduced.

In the process of operation, the enterprise accrues depreciation, reflects losses from a decrease in utility, carries out revaluation and writes off objects that have lost economic feasibility. To ensure the homogeneity of the information base, it is advisable to regulate these operations through standardized accounting entries (Table 5).

Table 5. Accounting entries for depreciation, revaluation and termination of the use of intangible assets

Business transaction	Debit	Credit	Primary document	Managerial goal	Result for analytics
Depreciation of software accrued	92	133	Depreciation statement	Distribution of value by periods	Formation of operating costs
Depreciation of the patent in production is accrued	23	133	Depreciation statement	Inclusion in the production cost	Product Costing
A decrease in the usefulness of an asset is recognized	975	133	Test Act	Book Value Adjustment	Fixing economic losses
An additional valuation of the asset was carried out	12	411	Appraiser's report	Actualization of fair value	Capital growth
Markdown at the expense of the reserve is reflected	411	12	Revaluation Act	Reduction of revaluation	Equity adjustments
The initial cost of the object was written off	133	12	Act NA-3	Termination of recognition	Closing an object
Attributed residual value to expenses	976	12	Act of liquidation	Loss Mapping	Formation of the financial result
Income from the exercise of rights is recognized	377	742	Alienation agreement	Monetization of an asset	Income fixation

Source: built by the author.

The correctness of accounting entries creates the basis for building a system of analytical indicators. However, the holdings themselves do not yet provide an answer regarding the effectiveness of the use of intellectual capital. A more complex methodological design is needed, which combines the structural characteristics of assets, the speed of their renewal, the intensity of depreciation and the impact on operating results [14; 15]. For an integral assessment of the state of intangible assets, it is proposed to use the following index:

$$I_{st} = \frac{\alpha K_{ren} + \beta K_{fit} + \gamma K_{inn} + \delta K_{cap} + \varepsilon K_{mob}}{\alpha + \beta + \gamma + \delta + \varepsilon} \quad (5)$$

where:

I_{st} – integral index of the state of intangible assets;

K_{ren} is the renewal factor;

K_{fit} – suitability factor;

K_{inn} – innovation saturation index;

K_{cap} is the share of intangible assets in total assets;

K_{mob} is the coefficient of commercialization;

$\alpha, \beta, \gamma, \delta, \varepsilon$ are weight parameters.

The developed model is useful in that it translates heterogeneous characteristics into a single dimension. Management gets the opportunity to evaluate not individual indicators, but the generalized level of the qualitative state of intellectual capital. For the practical application of the proposed approach, an analytical map of indicators is formed, given in Table 6.

The condition of assets, however, does not disclose their economic returns. To do this, it is necessary to assess the ability of intellectual capital to generate cash flows, strengthen market positions and increase the value of business [10, p. 201]. In our opinion, the best result is obtained by integrating the indicators of profitability, turnover, payback period and contribution to the capitalization of the enterprise. The integral indicator of economic efficiency should be calculated according to the formula:

Table 6. System of analytical indicators for assessing the state and use of intangible assets

Analytical indicator	Economic content	Source of information	Managerial appointment	Interpretation of the result	Calculation frequency	Responsible
Refresh rate	Intensity of inflow of new assets	NA Register	Assessment of investment activity	Growth of innovation potential	Quarterly	Financial Analyst
Dropout Rate	Stop Use Rate	Write-off acts	Aging control	Accelerated Moral Wear and Tear	Quarterly	Accountant
Suitability Factor	Share of useful value	Balance data	Assessment of the technical and economic condition	Potential for further operation	Monthly	Analyst
Depreciation load	Intensity of cost transfer	Depreciation information	Cost budgeting	Pressure on the operational result	Monthly	Accountant
Innovation Saturation Index	Share of strategic assets	Classification Register	Technological maturity analysis	Business Intellectualization Level	Quarterly	R&D Analyst
Commercialization Rate	Share of income-generating assets	Management reporting	Monetization Assessment	Economic return	Quarterly	Commercial Director
Legal protection coefficient	Fullness of valid rights	Register of rights	Legal risk control	Stability of legal status	Monthly	Lawyer
Digital Integration Index	Degree of integration into IT systems	ERP and BI	Assessment of information maturity	Level of automation	Quarterly	CIO
Strategic relevance factor	Compliance with corporate goals	Strategy Maps	Resource prioritization	Significance for development	Once every six months	Strategic Committee

Source: Built by the author.

$$E_{NA} = \frac{\lambda R_{na} + \mu T_{na} + \nu P_{na} + \omega V_{cap}}{\lambda + \mu + \nu + \omega} \quad (6)$$

where:

E_{NA} is an integral indicator of economic efficiency;

R_{na} – profitability of intangible assets;

T_{na} is the turnover ratio;

P_{na} – return on investment index;

V_{cap} is the coefficient of influence on the market value of the enterprise;

$\lambda, \mu, \nu, \omega$ are the weighting factors.

If the value of the indicator increases, it can be assumed that intellectual resources are used more productively. In the case when the index decreases, the management reviews the asset structure, depreciation policy or commercialization directions.

Economic efficiency requires systematic control. That is why the final block of the methodology covers internal audit. Its task is to verify ownership rights, the correctness of the assessment, the validity of depreciation terms, the completeness of information disclosure and compliance with internal regulations. Control, in fact, does not duplicate accounting. It assesses the quality of the management logic embedded in the system. The organization of audit procedures and the risk matrix are presented in Table 7. The proposed methodological approach forms a complete system of analytical support for the management of intangible assets. Accounting entries provide a reliable information basis. Integral indices translate heterogeneous characteristics into single quantitative estimates. Internal audit controls the quality of methodological solutions and reduces the risk of reporting distortion.

6. Conclusions

The study develops a comprehensive methodological approach to the management of intangible assets. It integrates procedures for identification, multi-criteria recognition, determination of original cost, adaptive depreciation and analytical valuation. Unlike traditional solutions, the proposed model consolidates accounting registers, legal confirmation documents, digital registers and management indicators within a single information platform. Such an architecture guarantees a coherent representation of the legal status, economic utility and strategic role of intellectual resources. A system

of integral indicators for assessing the state, economic performance and informational relevance of intangible assets has been proposed. The system contains indices of recognition, structural suitability, economic efficiency and the level of digital maturity of the accounting and analytical environment. These calculations transform the heterogeneous characteristics of assets into a comparable quantitative format, which ensures dynamic comparability of results in the time period. The basic principle of building the system is to combine accounting data with indicators of commercialization, legal protection, technological obsolescence and strategic compliance.

Table 7. Intangible Assets Internal Control and Audit Program

Object of inspection	Control procedure	Audit Evidence	Main risk	Potential distortion	Recommended action	Responsible
Ownership	Reconciliation of registers and contracts	Certificates, licenses	Loss of rights	Wrongful recognition	Renewal of documents	Legal Department
Initial cost	Checking the composition of expenses	Calculations	Undercapitalization	Underestimation	Clarification of calculations	Accounting
Term of use	Analysis of technical conclusions	Orders, conclusions	Unreasonable term	Depreciation distortion	Revision of deadlines	Technical Department
Depreciation	Recalculation	Information	Arithmetic errors	Cost distortion	Adjustment of accruals	Accountant
Depreciation	Testing assumptions	Forecasts, scenarios	Hidden decrease in utility	Overvaluation of assets	Reserve formation	Chief Financial Officer
Disclosure	Checking notes	Reporting	Incomplete disclosure	Information losses	Supplementing the explanations	Chief Accountant
Access to systems	Log Analysis	System logs	Unauthorized changes	Data distortion	Increased control	CIO
Commercialization	Assessment of actual use	Contracts and reports	Inefficient use	Loss of potential benefits	Strategy review	Commercial Director
Archiving documents	Checking the completeness of the archive	Electronic files	Loss of evidence	Inability to confirm	Creating backups	Administrator

Source: Built by the author.

The architecture of internal control and digital audit of intangible assets is substantiated. It integrates ERP modules, intellectual property rights registers, business intelligence systems, audit trail logs, and automated depreciation audit procedures. This configuration provides continuous monitoring of changes in the book value, useful life, legal status and level of commercial return. The lack of such integration traditionally leads to fragmentation of control procedures and makes it impossible to identify risks promptly. The proposed mechanism minimizes accounting distortions and increases the transparency of the management of intellectual resources of the enterprise.

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