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## Big Data and Artificial Intelligence in Accounting and Information Systems of Insurance Business Stakeholders

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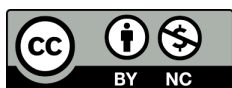
**Abstract.** Today, the volume of data generated by insurance market participants is growing exponentially, and traditional Accounting Information Systems (AIS) cannot always provide analytical support in real time. Presenting a systematic analysis of the structure and functioning of information and analytical ecosystems of insurance business stakeholders (IBS) that integrate AIS, Big Data, and AI technologies, the article provides answers to three questions: Which key IBS generate and consume information flows within modern AIS, and how can these flows be classified by type and frequency of occurrence? How does integrating Big Data and AI technologies alter the structure, processing, and utilisation of information flows for financial accounting and managerial control of IBS? What synergistic effects does the combination of Big Data, AI, and AIS in IBS provide regarding financial data accuracy, process transparency, and the speed of managerial decision-making? The methodological basis of the study is a set of complementary methods, in particular, systematic analysis, a classification-typological approach, and structural-functional modelling. These methods allowed the identification of the main and auxiliary IBS, the classification of information flows according to their structure, frequency of receipt, and data sensitivity, and the construction of generalised schemes illustrating their interaction with AIS, Big Data, and AI. The researchers identified the main and auxiliary entities of the insurance business and classified information flows by structuring, frequency of receipt, and data sensitivity. The study results show that integrating Big Data and AI into AIS ensures accounting automation, accelerates management decision-making, and improves the accuracy of financial data and the transparency of management processes. The article develops models of multilevel interactions between technological components and IBS, demonstrating the synergistic effects of integrating advanced technologies. Insurance business stakeholders can use the results of this study to optimise the digital transformation of their AIS, enhance risk management efficiency, and support the development of personalised insurance products.

**Keywords:** Big Data, artificial intelligence, accounting and information systems, insurance business entities, information and analytical ecosystems, management decisions, digital transformation.

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## Big Data та штучний інтелект в обліково-інформаційних системах суб'єктів страхового бізнесу

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**Анотація.** Сьогодні обсяг даних, що генерується учасниками страхового ринку, зростає експоненційно, а традиційні обліково-інформаційні системи (ОІС) не завжди здатні забезпечити аналітичну підтримку в режимі реального часу. Представляючи систематичний аналіз структури та функціонування інформаційно-аналітичних екосистем страхових компаній, які інтегрують ОІС, технології Big Data та ШІ, стаття надає відповіді на три запитання: Як ключові страхові компанії генерують та споживають інформаційні потоки в сучасних обліково-інформаційних системах, і як ці потоки можна класифікувати за типом та частотою виникнення? Як інтеграція технологій Big Data та ШІ змінює структуру, обробку та використання інформаційних потоків для фінансового обліку та управлінського контролю? Які синергетичні ефекти забезпечує поєднання Big Data, ШІ та обліково-інформаційних систем у страхових компаніях щодо точності фінансових даних, прозорості процесів та швидкості прийняття управлінських рішень? Методологічною основою дослідження є комплекс взаємодоповнюючих методів, зокрема системний аналіз, класифікаційно-типологічний підхід та структурно-функціональне моделювання. Ці методи дозволили визначити ключових суб'єктів страхового бізнесу, структуру і типи інформаційних потоків, а також побудувати узагальнені схеми їх взаємодії із ОІС, Big Data та ШІ. Дослідники визначили головних і допоміжних суб'єктів страхового бізнесу та класифікували інформаційні потоки за структурованістю, частотою надходження та чутливістю даних. Результати дослідження свідчать, що інтеграція Big Data та ШІ у ОІС забезпечує автоматизацію бухгалтерського обліку, прискорення управлінських рішень, підвищення точності фінансових даних та прозорості процесів. У статті розроблено модель багаторівневих взаємодій між технологічними компонентами та користувачами, які демонструють синергетичні ефекти від інтеграції передових технологій. Отримані результати можуть бути використані для оптимізації цифрової трансформації суб'єктів страхового бізнесу, підвищення ефективності управління ризиками та формування персоналізованих страхових продуктів.

**Ключові слова:** Big Data, штучний інтелект, обліково-інформаційні системи, суб'єкти страхового бізнесу, інформаційно-аналітичні екосистеми, управлінські рішення, цифрова трансформація.

### 1. INTRODUCTION

The contemporary insurance industry operates within a highly dynamic and intensely competitive environment, wherein the accuracy, speed, and transparency of information processing exert a direct influence on the effectiveness of risk management and the formulation of strategic decisions (Rao & Soofastaei, 2025; Wilkinson et al., 2023). In the era of digitalisation, the volume of data generated by insurance market participants is expanding exponentially through telematics systems, mobile applications, IoT sensors, and social media, thereby creating vast flows of both structured and unstructured data (Almanasra, 2024; Kuppan et al., 2024).

Conventional accounting and management systems frequently lack the capacity to effectively integrate these heterogeneous data streams and to deliver analytical support in real time. Consequently, insurers' capabilities in forecasting risks, optimising insurance products, and automating financial and managerial reporting remain significantly constrained (Gupta et al., 2022; Tendulkar, 2025).

Extant academic literature underscores that the synergy between Big Data and artificial intelligence (AI) technologies holds the potential to profoundly transform financial and managerial accounting practices in insurance companies, to enhance the efficiency of risk

assessment, and to facilitate the personalisation of insurance products (Alsulami, 2025; Gebeşoğlu, 2022; Leidman, 2025). Nevertheless, the corpus of systematic research remains limited, particularly in terms of studies that provide a detailed examination of information flows across all stakeholders of the insurance ecosystem, or that rigorously evaluate the effectiveness of Big Data and AI integration within specific local and regulatory contexts (Alrfai et al., 2024; Guerrero et al., 2025; Singh, 2022).

Accordingly, the core research problem resides in the insufficient understanding of the structure and functioning of insurance business stakeholders' information and analytical ecosystems (IBS) that integrate accounting information systems (AIS), Big Data, and AI. Equally critical is the uncertainty surrounding the extent to which such integration affects the accuracy of financial accounting, the transparency of internal processes, and the velocity of managerial decision-making. Addressing this issue is both timely and essential for optimising the digital transformation of IBS, thereby improving its operational efficiency and strengthening its competitive position within the marketplace.

## 2. THEORETICAL BACKGROUND AND RESEARCH QUESTIONS

### 2.1. Technological Integration of Big Data and AI

Recent research demonstrates the growing attention of scholars and practitioners to integrating Big Data and Artificial Intelligence (AI) technologies into insurance companies' Accounting Information Systems (AIS). A significant body of literature is devoted to a comprehensive review of the opportunities and challenges associated with the synergy between Big Data and AI in financial accounting and management processes (Alsulami, 2025; Faccia & Petratos, 2024; Ionescu, 2019).

Particular emphasis is placed on the impact of these technologies on the transformation of traditional accounting procedures, the development of new auditing models, and the enhancement of transparency in financial reporting.

Considerable attention has been devoted to methodological aspects in recent scholarship, particularly bibliometric and meta-analytical approaches. For example, studies (Bisht et al., 2024; Mall et al., 2023) have systematised publications from the last two decades, identifying key trends in the use of Big Data within the insurance domain, while (Ladeira et al., 2024) offers a meta-analysis of AI integration in service industries, including insurance.

Such studies not only demonstrate the evolution of academic perspectives but also assist in identifying existing gaps that require further in-depth investigation.

### 2.2. Applications and Impacts in the Insurance Sector

The literature also identifies a number of studies directly related to the insurance business. Research works (Gebeşoğlu, 2022; Leidman, 2025; Rao & Soofastaei, 2025; Wilkinson et al., 2023) highlight that the adoption of AI and Big Data analytics substantially transforms processes of risk assessment, actuarial calculations, and customer experience management.

Further contributions (Gupta et al., 2022; Holland & John, 2023; Sahai et al., 2023) demonstrate the practical aspects of applying machine learning algorithms for loss prediction, tariff optimisation, and implementing behavioural insurance models.

The organisational and strategic dimensions of implementing advanced technologies have also been actively developed. Works (Guerrero et al., 2025; Gupta & Kashif, 2025; Zaijuan et al., 2025) explore the factors influencing the digital transformation of insurance companies, ranging from organisational readiness and regulatory environments to strategic management and corporate consulting.

In addition, studies (Alrfai et al., 2024; Singh, 2022) underscore the importance of Big Data's analytical capabilities for building risk management systems and strengthening business resilience.

### 2.3. Emerging Trends and Challenges

Among other emerging directions, scholars increasingly emphasise the personalisation of insurance products (Veerasankararao et al., 2025; Yum et al., 2022),

the digitalisation of marketing and customer experience (Kuppan et al., 2024; Ramachandaran et al., 2025), as well as the integration of AI into claims inspection and damage assessment processes (Tendulkar, 2025).

At the same time, some studies focus on legal and regulatory challenges arising from adopting innovative technologies within the insurance business (Wilkinson et al., 2023). These contributions highlight the interdisciplinary nature of the field: the integration of Big Data and AI is considered not only a technological tool but also a driver of strategic, managerial, and accounting transformation.

Nevertheless, despite the growing number of publications, there remains a need for more detailed examination of the specific impacts of these technologies on financial and managerial accounting of Insurance Business Stakeholders (IBS), particularly in the context of local markets and regulatory constraints.

### 2.4. Research Questions

This article provides a systematic analysis of the structure and functioning of IBS's information and analytical ecosystems, which integrate AIS, Big Data, and AI. It focuses particularly on assessing the effectiveness of such integrations for financial accounting and managerial decision-making.

To guide the research process, the following three research questions have been formulated:

(RQ1) Which key IBS generate and consume information flows within modern AIS, and how can these flows be classified by type and frequency of occurrence?

(RQ2) How does integrating Big Data and AI technologies alter the structure, processing, and utilisation of information flows for financial accounting and managerial control of IBS?

(RQ3) What synergistic effects does the combination of Big Data, AI, and AIS in IBS provide regarding financial data accuracy, process transparency, and the speed of managerial decision-making?

## 3. RESEARCH METHOD

The methodological basis of the study comprises a set of complementary methods that ensure a comprehensive and systematic analysis. In particular, the method of systems analysis (Fisher, 2010; Goldkuhl & Röstlinger, 2003; Varajão et al., 2022) was employed, allowing the Insurance Business Stakeholders (IBS) to be considered as complex socio-economic systems with numerous information flows. This enabled the identification of key IBS, the determination of their interrelationships, and the integration links between core Accounting Information Systems (AIS), AI technologies, and Big Data analytics.

A classification and typological method (Doty & Glick, 1994; Yin et al., 2025) was also applied, which allowed the IBS to be categorised into primary and auxiliary stakeholders, and information resources to be divided into structured and unstructured data. This approach ensured clarity in the construction of information models and facilitated the specification of how each type of data is used in accounting, auditing, and risk management processes.

Furthermore, a structural-functional modelling method (Hanan & Shoval, 1986; Valjak & Bojčetić, 2023) was utilised, providing the opportunity to represent information flows as consolidated schemes and tables. This enabled the visualisation of interactions between the elements of the information-analytical ecosystem, as well as the identification of their functions and roles in ensuring the transparency and efficiency of IBS accounting processes.

Applying this set of methods made it possible to develop a coherent methodological framework for analysing and modelling IBS information flows, justify the effectiveness of integrating advanced technologies into accounting and management processes, and reveal the synergistic effects resulting from their utilisation.

## 4. RESULTS AND DISCUSSION

### 4.1. Insurance Business Stakeholders and Information Flows

IBS include all participants in the insurance market who are directly or indirectly involved in insurance processes (contracting, forming insurance funds, making payments, supervision, and brokerage). IBS generate information flows during their interaction with AIS. AIS are software and hardware complexes that ensure data collection, storage, processing, and analytics for accounting, management, and operational purposes in a company (Alsulami, 2025; Faccia & Petratos, 2024).

Information flows not only meet management and operational needs but also form the basis for accounting, financial reporting, and automated compliance control (Guerrero et al., 2025; Ionescu, 2019). Therefore, the efficiency of AIS directly affects the accuracy of financial information and the transparency of internal company processes.

### 4.2. Key and Auxiliary Stakeholders in the Insurance Business

For the insurance business, stakeholders perform key functions such as managing contracts and policies, accounting for insurance reserves, premiums, and payments, integrating with CRM, banking, and payment systems, and reporting to regulators. In this study, stakeholders are classified as primary and auxiliary.

Primary IBS, which generate the largest information flows and actively interact with AIS, include insurance companies, policyholders (individuals and legal entities), and insurance intermediaries (agents and brokers). These entities are active system users for service delivery, information exchange, and data submission for processing (Gupta et al., 2022; Rao & Soofastaei, 2025; Wilkinson et al., 2023). Data received from primary IBS serve as the direct source for accounting insurance reserves, premiums, payments, and internal financial operations, ensuring both accuracy and timely reporting for regulators and management (Alrfai et al., 2024; Singh, 2022).

Auxiliary IBS indirectly participate in insurance processes or provide additional data, including reinsurers, insured individuals, professional insurance associations, mutual insurance societies (MIS), regulatory and supervisory authorities, as well as professional risk and claims assessors (underwriters, surveyors, loss adjusters, dispatchers) (Holland & John, 2023; Sahai et al., 2023).

### 4.3. Structured and Unstructured Data Flows

All IBS generate information flows that include structured data (SD) and unstructured raw data (UD). Insurance companies are AIS's primary users, administrators, and owners, generating data flows on policies, insurance reserves, payments, financial operations, and internal management information (Gebeşoğlu, 2022; Gupta & Kashif, 2025).

**Table 1. Information Flows Between Primary IBS and AIS**

Flow	Data type: data content	Frequency	Sensitivity
<i>Insurance companies</i>			
IBS → AIS	SD: policies, reserves, payments, financial transactions, internal management data	Daily / real-time	H
	UD: phone call recordings, scanned contracts, photos of insured objects	As needed	M / H
AIS → IBS	SD: financial and analytical reports, forecasts, risk management recommendations	Daily, weekly, quarterly	H
<i>Policyholders (individuals &amp; legal entities)</i>			
IBS → AIS	SD: insurance applications, risk info, personal and financial info, loss data	When signing/ updating policies, insurance events	H
	UD: photo/video evidence of losses	Upon insurance event	H
AIS → IBS	SD: policy status notifications, payments, individualized analytics	On demand, automated alerts	H
<i>Insurance intermediaries</i>			
IBS → AIS	SD: sales, marketing, client info, client applications	Daily / real-time	M / H
AIS → IBS	SD: commission calculations, portfolio analytics, proposal recommendations	Monthly / on demand	M

Source: systematised by the authors based on (Almanasra, 2024; Faccia & Petratos, 2024; Guerrero et al., 2025; Gupta et al., 2022; Holland & John, 2023; Leidman, 2025; Veerasankararao et al., 2025; Wilkinson et al., 2023).

Table 1 summarizes the main data interactions between primary IBS and AIS, considering frequency and sensitivity of data (High (H) (financial, personal, and behavioural data), Medium (M), Low (L)).

Analysis of the presented data indicates that insurance companies play a key role in generating and processing information flows. Their AIS not only accumulate these data but also transform them into analytical reports, forecasts, and risk management recommendations, improving operational efficiency and financial control. Integration of these flows into AIS allows automation of financial transaction accounting, compliance control, and generation of accurate management and financial reports, enhancing internal audit and regulatory compliance.

#### 4.4. Auxiliary Stakeholders and Their Information Flows

Policyholders and insurance intermediaries act as active information providers and analytics users, ensuring two-way communication and prompt responses to risk and client needs (Ramachandaran et al., 2025; Veerasankararao et al., 2025; Yum et al., 2022). Comparison of data from various sources shows that this interaction determines the effectiveness of automated processes and management decisions (Bisht et al., 2024; Mall et al., 2023).

Auxiliary IBS indirectly participate in insurance processes or provide additional data for analytics and regulatory control. Table 2 illustrates the information flows between auxiliary IBS and AIS.

**Table 2. Information Flows Between Auxiliary IBS and AIS**

Flow	Data type: data content	Frequency	Sensitivity
<i>Insured persons</i>			
IBS → AIS	UD: insurance events, claim documents, photo/video evidence	Upon event	H
AIS → IBS	SD: claim processing status, expert assessment results	During claim settlement	H
<i>Reinsurers</i>			
IBS → AIS	SD: reinsurance contracts, aggregated risk data, statistics	Monthly / quarterly	M / H
AIS → IBS	SD: risk calculations, financial reports	Quarterly / on demand	M
<i>Insurance associations, MIS</i>			
IBS → AIS	SD: standardized reports, consolidated accounting data	Quarterly / annually	M
AIS → IBS	SD: analytical & statistical data, market recommendations	Quarterly / annually	L / M
<i>Regulatory authorities</i>			
IBS → AIS	SD: regulations, reporting standards	Upon legislation updates	M
AIS → IBS	SD: supervisory & financial reports, risk analytics	Quarterly / annually	H
<i>Professional risk assessors</i>			
IBS → AIS	SD: risk evaluation, insured object data, expert conclusions	During policy issuance	M / H
AIS → IBS	SD: premium recommendations, risk models, forecast data	On demand	M
<i>Professional claims assessors</i>			
IBS → AIS	SD: claims assessment, compensation reports, documents/photos	Upon insurance event	H
AIS → IBS	SD: payment decisions, settlement instructions	During claim settlement	H

Source: systematised by the authors based on (Faccia & Petratos, 2024; Gupta & Kashif, 2025; Leidman, 2025; Sahai et al., 2023; Wilkinson et al., 2023).

Data from auxiliary IBS allow insurance companies to maintain consolidated accounting of risks and payments, prepare regulatory reports, and optimize financial planning, emphasizing each stakeholder's role to ensure the completeness and accuracy of accounting data and analytics.

#### 4.5. Integration of Big Data and AI in AIS

Big Data and AI synergy creates an additional layer of information interactions in modern insurance AIS (Table 3). Data flows extend beyond IBS communication to multidimensional channels between technological

components – Big Data storage, AI analytics modules, and core AIS. Large volumes of unstructured data from IoT sensors, telematics, transaction platforms, and social media are streamed in real time to deep learning algorithms for risk modelling, pricing, and fraud detection (Almanasra, 2024; Kuppan et al., 2024; Tendulkar, 2025).

Processed outputs (forecasts, scores, and alerts) are integrated into AIS and returned to insurance companies as actionable recommendations for decision-making and risk management (Guerrero et al., 2025; Leidman, 2025).

Table 3. Information Flows Between Big Data, AI, AIS, and IBS

Flow	Data type: data content	Frequency	Sensitivity
<i>Big Data</i>			
BD → AI	UD: large datasets for model training and operation (IoT, telematics, social media, transactions, anonymized IBS data)	Streaming / real-time	H
AI → BD	UD: refined datasets, self-analysis results, detected patterns, annotations, features for model retraining	Periodic / upon new patterns	H
<i>Artificial intelligence</i>			
AI → AIS	SD: analytical results (in the form of tables, numerical indicators, KPIs); scoring (numerical risk/creditworthiness assessments); forecasts (structured predictive models with parameters, charts, reports)	Real-time / scheduled	H
	UD: alerts (textual or visual messages that may lack a formalized structure)	Real-time / scheduled	H
AI → IBS	SD: automated decisions (formalized as rules/algorithms); forecasts (numerical and statistically formalized)	Real-time	H
	UD: personalized recommendations (text-based, individual advice, often lacking strict structure); prediction of insurance events (descriptive scenarios with unstructured parameters); integration with AI-CRM (customer profiles, behavioral patterns, which are often semi-structured or unstructured)	Real-time	H
<i>Individual divisions of the insurance company</i>			
BD/AI → Risk Management Dept	SD: insurance risk forecasting (numeric models, probability tables, risk maps); underwriting (formalized risk evaluation rules, scoring tables); actuarial calculations (formulas, coefficients, statistical models)	Real-time / periodic	H
	UD: scenario modelling (descriptive scenarios, qualitative assumptions, stress-test narratives)	On demand / periodic	M / H
AI-CRM → Marketing / Sales	SD: dynamic pricing (formulas, pricing algorithms, tariff adjustment tables)	Real-time / frequent	M
	UD: personalized offers (textual/visual content, individualized campaign materials); customer behaviour assessment (behavioural patterns, clickstream data, social media activity, often semi/unstructured)	Real-time / on demand	M / H
<i>AIS and cyber risk dept</i>			
AIS → Cyber Risk Dept	UD: detected threats, incidents, event logs	Streaming / real-time	H
Cyber Risk Dept → AIS	UD: updated cyber insurance policies, response recommendations	Streaming / real-time	H
AIS → Regulatory & Audit Bodies	SD: automated reporting, compliance, blockchain transactions	Scheduled / on demand	H

Source: systematised by the authors based on (Alsulami, 2025; Alrfai et al., 2024; Bisht et al., 2024; Gebeşoğlu, 2022; Ionescu, 2019; Kumar et al., 2025; Kuppan et al., 2024; Ladeira et al., 2024; Mall et al., 2023; Ramachandaran et al., 2025; Rao & Soofastaei, 2025; Singh, 2022; Tendulkar, 2025; Zaijuan et al., 2025; Zubaidah et al., 2024).

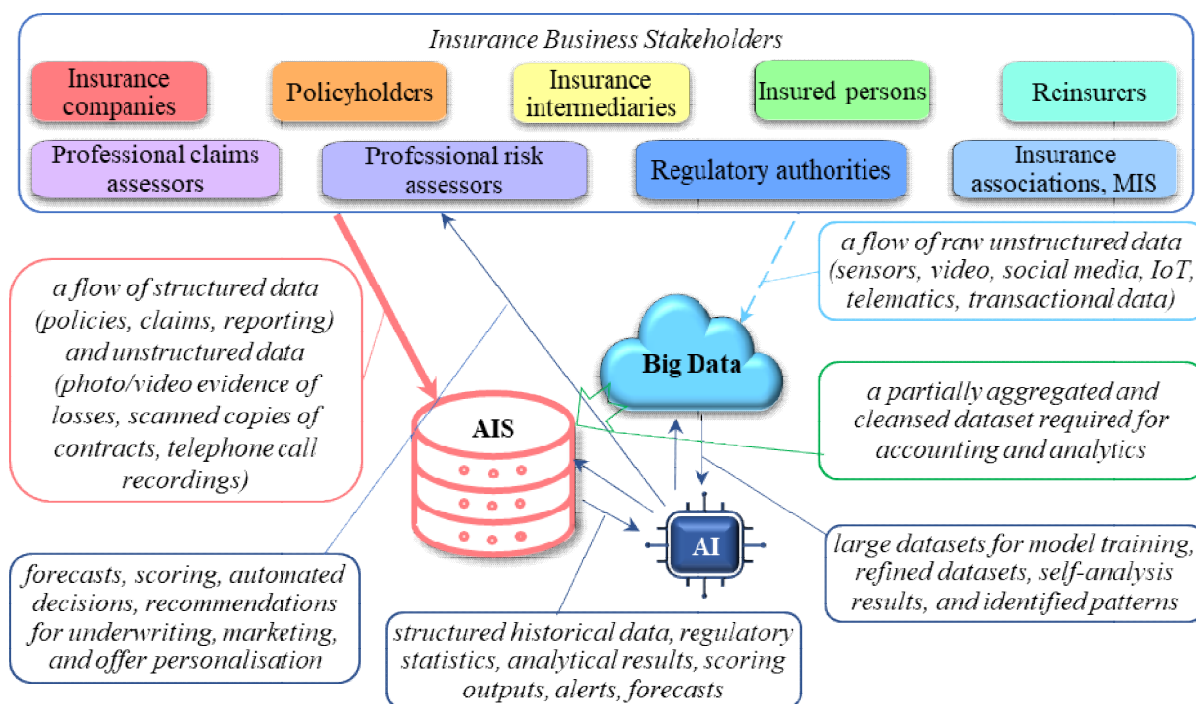
These interactions form a closed data loop, where Big Data acts as a “supplier” of large flows, AI serves as the “analytical core,” and AIS functions as the infrastructure for storing, displaying, and utilizing results. This architecture enables continuous updates of risk models and personalized insurance products, increases decision-making speed and forecast accuracy, while imposing higher requirements for data protection, regulatory compliance, and transparency of algorithmic decisions (Rao & Soofastaei, 2025; Wilkinson et al., 2023).

Integrating AI with AIS allows automated generation of financial and management reports, real-time adjustment of insurance reserves, and fast formation of

regulatory reporting (Alsulami, 2025; Faccia & Petratos, 2024), which is critical for standards compliance and internal audit.

#### 4.6. Insurance Market Information-Analytical Ecosystem

Figure 1 illustrates the insurance market information-analytical ecosystem formed by integrating primary IBS, AIS, Big Data systems, and AI modules. Integration of data and analytics into a unified ecosystem ensures a continuous cycle of collection, processing, and utilization of information, improves forecast accuracy, decision-making speed, and risk management efficiency.



**Figure 1. Insurance Market Information-Analytical Ecosystem Based on Integration of AIS, Big Data, and AI**

Source: compiled by authors.

All IBS interact through a multi-level system of information flows, where each component plays a specific role:

- Insurance companies accumulate data and generate analytical reports for management decisions and interaction with regulators;
- Policyholders and intermediaries provide two-way communication and data for operational analytics;
- Auxiliary IBS supply additional data for risk assessment, insurance events, and regulatory control;
- Big Data serves as a repository of large data flows and a source of analytical material for AI;
- AI transforms data into forecasts, scores, and recommendations, which are integrated into AIS and delivered to users for real-time decision-making.

This architecture optimizes insurance processes, enhances risk modelling accuracy, accelerates response to insurance events, and improves product personalization for clients. AI modules also streamline accounting processes, generating precise financial reports, automatically calculating insurance reserves, ensuring transaction compliance, and facilitating faster annual and quarterly reporting.

## 5. CONCLUSION

Information-analytical ecosystems of IBS that integrate AIS, Big Data, and AI represent a significant and continuously evolving area of research within the context of the insurance sector's digital transformation. They are critical for enhancing accounting accuracy, management process transparency, and decision-making speed. This study provides a comprehensive overview of such integrations' structure, functioning, and effectiveness, addressing three principal research questions.

The study identified the key IBS (RQ1) that generate and consume information flows in modern AIS. Primary IBS include insurance companies, policyholders, and insurance intermediaries, which actively interact with the systems for accounting, analytics, and management decision-making. Auxiliary stakeholders, including reinsurers, professional assessors, regulatory authorities, and insurance associations, provide additional data for analytics, regulatory compliance, and risk assessment. Information flows were categorised by structured and unstructured data, arrival frequency, and sensitivity, allowing a comprehensive evaluation of their role in ensuring accounting accuracy and the efficiency of management processes.

Integrating Big Data and AI technologies has altered information flow structure, processing, and utilisation (RQ2). Deep learning algorithms process large datasets from IoT sensors, telematics systems, social media, and transactional platforms for risk prediction, pricing, personalisation of insurance products, and fraud detection. AI-generated analytical results are integrated into AIS and delivered to users in real time, ensuring prompt management decisions and automated accounting processes.

The combination of Big Data, AI, and AIS produces synergistic effects (RQ3), enhancing the accuracy of financial and managerial reporting, ensuring process transparency, accelerating strategic and operational decision-making, and supporting the personalisation of insurance products and optimizing reinsurance agreements. AI integration enables the automatic generation of financial and management reports, real-time adjustment of insurance reserves, and compliance with regulatory standards.

Overall, the study demonstrates that integrating AIS, Big Data, and AI is a key factor in the digital transformation of IBS, optimizing insurance processes and improving forecasting and management decisions. Simultaneously, it emphasises the need for further investigation into local regulatory specifics, new data processing technologies integration, and the development of AI models for predicting complex insurance risks.

The novelty of the article lies in the detailed mapping of information flows between primary and auxiliary insurance business stakeholders and technological components (AIS, Big Data, AI), which allows for the assessment of the impact of integrated technologies on financial data accuracy, process transparency, and the speed of managerial decision-making.

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