



Digitalization of bullion trading: A rapid systematic literature review based on the strategic management 5.0 framework

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ABSTRACT

Background: The digitalization of bullion trading has accelerated rapidly due to technological advancement and market demand for more efficient, transparent, and inclusive investment access. Despite growing implementation across platforms, the academic literature remains fragmented in explaining the dominant themes, key benefits, and strategic risks of bullion trading digital transformation. **Methods:** This study employed a rapid systematic literature review (RSLR) approach using PRISMA guidelines to identify, screen, and synthesize relevant scholarly publications on digital bullion trading. Articles were collected from major academic databases, filtered using predefined inclusion–exclusion criteria, and analyzed using thematic synthesis to map conceptual patterns and research trends. **Findings:** The review reveals four dominant themes: technology adoption and platform innovation, trading efficiency and market accessibility, regulatory and governance challenges, and risk management including cybersecurity and fraud. Digital bullion trading strengthens market inclusivity and transaction speed but also increases exposure to technological, compliance, and trust-related risks. Furthermore, regulatory readiness and institutional governance emerge as critical enablers for sustainable digital bullion ecosystems. **Conclusion:** Digitalization in bullion trading provides strategic advantages in operational efficiency, market expansion, and customer experience; however, long-term sustainability requires stronger governance frameworks, regulatory harmonization, and enhanced risk mitigation strategies. Future studies should integrate cross-country comparisons and empirical testing of digital trading performance models. **Novelty/Originality of this article:** This study provides an updated thematic mapping of digital bullion trading research using an RSLR-PRISMA approach, offering strategic insights that connect technological innovation, regulatory dynamics, and sustainability of bullion trading ecosystems.

KEYWORDS: bullion trading; digitalization; FinTech; regulatory governance; RSLR.

1. Introduction

The digitalization of financial and commodity markets has increasingly reshaped investment services, including the bullion business (Verhoef et al., 2021; Kraus et al., 2021, 2022). Bullion trading, traditionally dominated by physical transactions and conventional market channels, is progressively shifting toward platform-mediated services, fintech integration, and emerging digital gold investment products (Boot et al., 2021; Organisation for Economic Co-operation and Development, 2020; Thakor, 2020). This transformation is

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driven by growing consumer demand for accessibility, lower entry barriers, and faster trading mechanisms, enabling broader participation in precious metal investment (Bollaert et al., 2021; Ozili, 2021). In parallel, digital assets such as Bitcoin are frequently framed as digital gold, stimulating renewed academic attention toward bullion-related digital investment behaviour (Dyhrberg, 2016; Bouri et al., 2017). Recent studies suggest that digital finance instruments increasingly influence commodity markets, particularly the gold market. This influence is mediated through emerging financial infrastructures such as decentralized finance (DeFi) and platform-based investment ecosystems. In emerging markets, including Indonesia, digital gold investment services have also been institutionalized through regulated platforms offered by formal financial institutions, reinforcing the practical relevance of digital bullion transformation.

Despite these opportunities, the transition toward digital bullion ecosystems introduces complex strategic challenges. Key concerns include trust formation, speculative behaviour, cyber and fraud exposure, regulatory compliance, and governance vulnerabilities that may undermine market stability and consumer protection. Prior fintech research highlights that cybersecurity threats and governance failures remain among the most critical risks in digital finance ecosystems (Suresh et al., 2025). Moreover, regulatory design can shape corporate innovation behaviour, indicating that digital bullion development depends not only on technology adoption but also on institutional readiness and strategic governance (Haomin et al., 2025). Several studies also highlight volatility transmission and uncertainty effects between gold and digital assets, reinforcing the importance of risk governance in digitally mediated bullion markets (Shahzad et al., 2019; He et al., 2018).

However, despite the growing relevance of digital bullion business, academic discussions remain fragmented. Much of the empirical literature focuses on price dynamics, volatility spillovers, and safe-haven properties between gold and cryptocurrencies (Dyhrberg, 2016; Bouri et al., 2017; Demir et al., 2018), while relatively limited attention is given to the strategic and managerial implications of platformization, service innovation, and governance architecture in digital bullion operations. Although research increasingly addresses fintech ecosystems, DeFi, and CBDC-related developments (Claessens et al., 2024), systematic synthesis remains limited in explaining how such digital forces reshape bullion market mechanisms and business models. To the best of our knowledge, no prior review synthesizes digital bullion trading using a Strategic Management 5.0 lens.

To address these gaps, this paper conducts a Rapid Systematic Literature Review (RSLR) focusing on Scopus-indexed studies published between 2016 and 2026. Specifically, this study aims to: (1) map dominant research trends and thematic clusters related to bullion trading digitalization, including platformization, fintech integration, and digital gold products; (2) identify key opportunities and risks surrounding digital bullion trading, particularly in terms of value creation, market accessibility, trust, cybersecurity, and regulatory compliance; and (3) propose an integrative strategic framework based on Strategic Management 5.0, drawing on the SGDSM (Strategic Green Digital Synergy Model) approach in *Manajemen Strategik 5.0* to strengthen governance and sustainable competitiveness in digital bullion business transformation (Imbrani et al., 2026).

Accordingly, this review is guided by four research questions (RQ1–RQ4) focusing on thematic trends, opportunity structures, risk governance challenges, and the applicability of Strategic Management 5.0 as an integrative framework for digital bullion business transformation. 1) RQ1. What are the dominant research themes and trends in the literature on digital bullion trading and digital gold platforms?; 2) RQ2. What opportunities and value creation mechanisms are identified in the digitalization of bullion trading within the FinTech ecosystem?; 3) RQ3. What major risks (e.g., trust, cybersecurity, fraud, regulation, and volatility) are highlighted in digital bullion trading research?; 4) RQ4. How can Strategic Management 5.0 be utilized to develop an integrative framework for governance and sustainable competitive advantage in the bullion business?

This study contributes to the literature by providing a structured synthesis of Scopus-indexed research on digital bullion trading, emphasizing platform ecosystems, value

creation mechanisms, and governance-related risks beyond conventional safe-haven and volatility discussions. The review also advances theoretical development by applying Strategic Management 5.0 as an integrative lens to connect digital capability, governance, and human-centric value creation in bullion business transformation. Practically, the proposed framework offers strategic insights for bullion business actors and regulators to strengthen trust, resilience, and sustainable competitiveness in digital bullion operations.

Unlike prior studies that focus primarily on gold–cryptocurrency price dynamics and safe-haven properties, this review synthesizes the digital bullion trading literature through a Strategic Management 5.0 lens, integrating platform ecosystem development, governance readiness, risk management, and human-centric value creation into a unified strategic framework. The remainder of this paper is structured as follows. Section 2 describes the review methodology and PRISMA-based screening process. Section 3 presents the thematic synthesis results. Section 4 discusses the findings using the Strategic Management 5.0 perspective and proposes an integrative strategic framework. Finally, Section 5 concludes the study by outlining implications, limitations, and future research directions.

2. Methods

2.1 Research design

This study adopted a systematic review logic in order to ensure transparency, rigor, and replicability in the review process, consistent with systematic evidence synthesis in management and business research (Tranfield et al., 2003). The review stages identification, screening, eligibility assessment, and inclusion were reported following PRISMA-based procedures to strengthen methodological clarity and reduce selection bias (Page, McKenzie, et al., 2021). Given the rapidly evolving nature of digital finance and platform research, this review applied a Rapid Systematic Literature Review (RSLR) approach, which allows structured synthesis while maintaining methodological robustness within time constraints (Snyder, 2019; Tricco et al., 2020).

2.2 Data source and search strategy

The literature search used the Scopus database, which provides broad coverage of peer-reviewed, high-quality international journal publications across business, management, economics, finance, and technology-related disciplines. The search scope covered studies published between 2016 and 2026, reflecting the period in which fintech and platform-based digital investment systems accelerated within financial services and commodity markets. A structured keyword strategy was developed to capture publications related to bullion trading digitalization, including the following key term clusters: 1)

Bullion-related terms (e.g., bullion, gold trading, precious metals trading), 2) Digitalization-related terms (e.g., digital transformation, fintech, platform, online trading, blockchain), and 3) Governance/risk-related terms (e.g., governance, trust, cybersecurity, regulation, compliance, fraud). The search and screening process followed a structured procedure to support keyword identification, screening, and review reporting.

2.3 Inclusion and exclusion criteria

To ensure thematic relevance and consistent quality, the authors applied predefined inclusion and exclusion criteria. Studies were included if they were peer-reviewed journal articles indexed in Scopus, published between 2016 and 2026, and addressed bullion trading, digital gold, precious metals markets, or related commodity investment in a digital context. Eligible studies also examined digitalization drivers such as fintech, digital platforms, online trading systems, blockchain, or tokenization, and/or addressed strategic, governance, risk, trust, compliance, or regulatory issues related to digital financial or

commodity market transformation. Studies were excluded if they were not journal articles, including conference proceedings, book chapters, editorials, or notes; addressed gold in non-business contexts, such as medicine, chemistry, dentistry, or materials science, without a clear connection to bullion trading or investment; lacked sufficient relevance to digitalization; or could not be assessed for eligibility because essential bibliographic information was unavailable.

2.4 Screening process (PRISMA flow) and quality assessment

The identification stage generated 564 records from the Scopus database. After removing duplicates ($n = 2$), 562 records remained for screening. We applied automated filtering and preliminary exclusions based on publication type, relevance scope, and completeness of bibliographic information, leaving 353 records for title and abstract screening. During screening, we excluded 303 records for limited relevance to digital bullion trading, leaving 50 articles for full-text eligibility assessment. After applying the eligibility criteria, we excluded 15 studies because they did not sufficiently address bullion trading digitalization, strategic implications, or governance-related mechanisms. As a result, we included 35 studies for qualitative synthesis.

Table 1. PRISMA screening and study selection results (2016–2026)

Stage	Description	n
Identification	Records identified through Scopus database searching	564
Identification	Records identified through other sources	0
Identification	Total records identified	564
Deduplication	Duplicate records removed	2
Deduplication	Records after duplicates removed	562
Screening (pre-filter)	Records excluded by automation tools (year limit/filtering)	142
Screening (pre-filter)	Records excluded due to journal quality and indexing criteria.	60
Screening (pre-filter)	Records excluded due to missing abstract	7
Screening	Records screened (title and abstract)	353
Screening	Records excluded after title and abstract screening	303
Eligibility	Full-text articles assessed for eligibility	50
Eligibility	Full-text articles excluded (insufficient relevance to digital bullion trading/strategy/governance)	15
Included	Studies included in qualitative synthesis (final sample)	35

As shown in Table 1, the review process yielded 35 eligible studies for qualitative synthesis after applying PRISMA-based identification, screening, and eligibility assessment (Page et al., 2021). This screening ensured thematic relevance to digital bullion trading and maintained evidence quality by prioritizing Scopus-indexed journal publications within Q1–Q4 categories. To ensure evidence quality, the included studies were screened based on journal quality indicators (quartile ranking Q1–Q4) and bibliographic completeness. This review prioritised high-quality peer-reviewed publications and excluded non-journal sources, ensuring stronger reliability and scholarly relevance of the synthesis results.

2.5 Data extraction, data synthesis, thematic analysis, and strategic framework development (strategic management 5.0 lens)

Data extraction captured essential bibliographic and analytical information from each eligible study. The extracted information included: (1) publication year, journal name, and quartile category (Q1–Q4); (2) research focus and context (e.g., bullion/gold trading, digital

gold products, fintech platforms, and DeFi-related linkages); (3) methodological approach (quantitative, qualitative, modelling-based, or review studies); (4) key findings related to opportunity structures (value creation, inclusion, efficiency, and liquidity); (5) key findings related to risk factors (trust, cybersecurity, fraud, volatility, compliance, and regulation); and (6) strategic recommendations relevant to digital bullion business transformation. In addition, the reviewed studies reported analytical techniques, particularly those addressing volatility spillovers and market connectedness, where frequency-domain connectedness frameworks are increasingly used to capture dynamic systemic risk transmission (Baruník & Křehlík, 2018).

The included studies were synthesized using qualitative thematic synthesis (Aromataris & Munn, 2020). Thematic coding was conducted iteratively to identify dominant patterns, similarities, and differences across the literature. The synthesis resulted in four major themes: 1) Digital platform ecosystem development in bullion trading; 2) Value creation opportunities enabled by digital bullion transformation; 3) Risk exposure and challenges, including trust, cybersecurity, speculation, and regulatory gaps; and 4) Strategic governance mechanisms to strengthen transparency, resilience, and sustainable competitiveness.

The selected articles were coded and synthesized using thematic synthesis to identify recurring concepts and dominant themes related to the digitalization of bullion trading. While the thematic synthesis is based strictly on the 35 included studies selected through PRISMA screening, the study used additional supporting references to strengthen methodological justification and theoretical discussion. To enhance theoretical and managerial relevance, the thematic findings were interpreted using Strategic Management 5.0 as the primary lens. This study adopted the SGDSM (Strategic Green Digital Synergy Model) approach from Manajemen Strategik 5.0 to integrate digital capability development, governance mechanisms, and human-centric value creation as foundational pillars for sustainable digital bullion transformation (Imbrani et al., 2026). Based on this integration, the authors developed an integrative strategic framework to guide digital bullion business strategy, risk governance, and long-term competitiveness.

3. Results and Discussion

3.1 Overview of included studies

Following the PRISMA-based screening process, 35 studies were included in the final qualitative synthesis. Overall, the selected literature shows growing scholarly attention to the intersection of bullion markets and digital finance ecosystems, particularly in the context of digital gold products and fintech-enabled investment service mechanisms (Charteris & Kallinterakis, 2021; Arpita et al., 2023; Hazirah et al., 2025). The studies reflect diverse methodological approaches, including econometric modelling (e.g., volatility and connectedness analysis), technology adoption and behavioural intention models, regulatory and governance analysis, and digital finance ecosystem reviews (Diniz et al., 2021; Pastén et al., 2025; Mukherjee, 2025; Omoola & Kaduna, 2023). The synthesis indicates that research on bullion trading digitalization has shifted from market-price discussions to broader concerns about platform strategy, trust-building mechanisms, and institutional governance. To ensure transparency of the selection process, the PRISMA flow diagram is presented in Figure 1. The diversity of the included studies provides a broad evidence base for identifying recurring patterns across technological, market, behavioural, and governance dimensions. These patterns are subsequently synthesized thematically to explain the key drivers, opportunities, risks, and strategic requirements associated with the digital transformation of bullion trading.

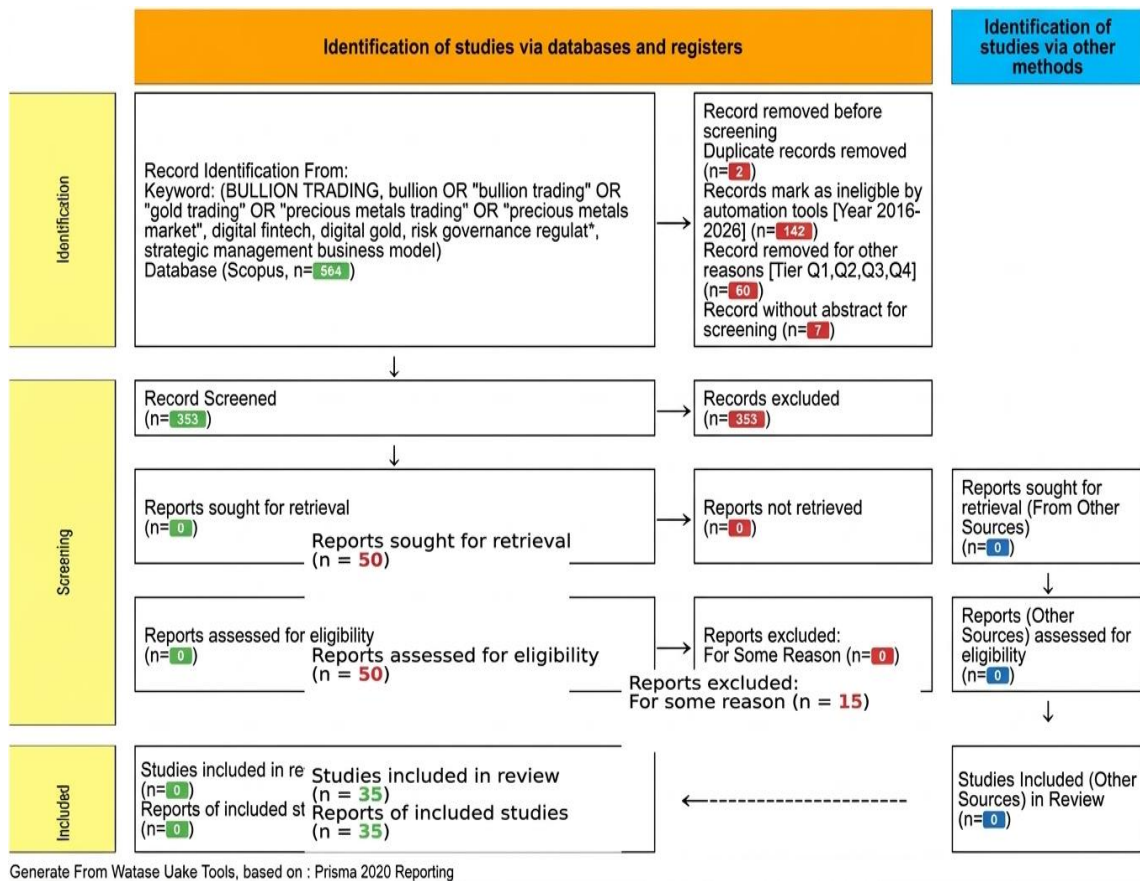


Fig. 1. PRISMA flow diagram of the RSLR screening process

3.2 Thematic findings: Digital transformation of bullion trading

The thematic synthesis identifies four dominant patterns that consistently emerge across the reviewed literature, reflecting the transformation of bullion trading into a digitally mediated ecosystem. Table 2 summarizes these patterns, outlining their conceptual scope, key findings derived from the evidence synthesis, and strategic implications for digital bullion business development. The first thematic pattern concerns the emergence of digital platform ecosystems facilitating bullion trading and investment. The reviewed studies highlight how the bullion business has evolved beyond traditional physical transactions into digitally mediated services supported by fintech infrastructure. Digital platforms enable faster trade execution, improved access, and increased liquidity by lowering entry barriers for retail investors. This transformation is reinforced by the broader digital finance ecosystem, including DeFi-related financial innovation and integrated digital investment services (Claessens et al., 2024; Senyo et al., 2024; Jiansuer et al., 2026). Platform development is characterized by technological enablement through mobile access and digital interfaces, ecosystem coordination among financial institutions, fintech actors, and customers, and multi-channel service integration.

The literature indicates that platformization represents more than an operational shift because it restructures how value is created and exchanged within the bullion market. Customer reach, digital service quality, and ecosystem trust consequently become important strategic differentiators (Charteris & Kallinterakis, 2021). Ecosystem-based platforms are therefore reshaping market structures and patterns of customer participation while creating new forms of interdependence among incumbent institutions, fintech entrants, regulators, and end-users. From a Strategic Management 5.0 perspective, this development positions ecosystem coordination as an important strategic capability for sustaining competitiveness in an increasingly interconnected bullion market (Senyo et al., 2024).

A second thematic pattern concerns the value creation opportunities enabled by digital bullion trading. The literature indicates that digitalization can expand accessibility and convenience, support wider participation among emerging investor segments, improve transaction efficiency, and reduce operational friction through simplified processes and faster settlement. Digital bullion services can also contribute to financial inclusion when integrated with broader fintech ecosystems and customer-centred platform design (Friedline & Chen, 2020). These developments extend the conventional value proposition of bullion by making investment services more accessible and adaptable to digitally oriented consumers. Digitalization also creates new value propositions through micro-investment opportunities, enhanced portfolio diversification, and greater market participation during periods of economic uncertainty. Such opportunities are associated with increasing investor attention toward bullion and bullion-related assets as hedging instruments, alongside the growing prominence of digital gold narratives in emerging investment markets (Arpita et al., 2023; Sayantan, 2024).

However, value creation is not guaranteed simply by digitizing existing transactions. Digital bullion services must also strengthen customer trust, transparency, and digital experience quality to achieve meaningful strategic differentiation. This is particularly relevant as investors increasingly evaluate bullion-related products within broader digital investment environments and interpret gold-linked digital assets through emerging “digital gold” narratives (Dyhrberg, 2016b; Shahzad et al., 2019). Furthermore, fintech and decentralized finance (DeFi) innovations may influence commodity markets, indicating that digital bullion platforms operate within increasingly interconnected financial ecosystems (Cevik et al., 2022). The strategic value of digital bullion therefore depends on the ability to integrate accessibility, efficiency, trust, user experience, and ecosystem connectivity into a coherent digital value proposition.

A third thematic pattern highlights the risks and strategic challenges accompanying the expansion of digital bullion operations. The literature identifies concerns surrounding trust, particularly in relation to perceived security, transparency, and platform credibility, alongside cybersecurity threats and technological vulnerabilities involving fraud and data breaches (European Union Agency for Cybersecurity [ENISA], 2022). Regulatory and compliance risks are also significant, particularly in cross-border digital finance environments, while speculative behaviour and market volatility create additional exposure through potential risk transmission between digital finance instruments and commodity markets. The reviewed studies indicate that market uncertainty and volatility spillovers between digital assets and gold remain persistent concerns, particularly during periods of crisis and heightened uncertainty (Selmi et al., 2018; Urquhart & Zhang, 2019; Diniz et al., 2021). Evidence of asymmetric and nonlinear linkages across Bitcoin–gold–market dynamics further suggests that digital financial environments may intensify risk transmission channels and investor herding behaviour (Jia et al., 2023; Enilov & Mishra, 2023; Halilibrahim et al., 2025).

These findings demonstrate that digital bullion trading introduces interconnected risks across trust, cybersecurity, compliance, and market volatility, thereby increasing the importance of governance-centred strategic responses. Within this context, trust and governance should be treated as core components of digital bullion competitiveness rather than supporting functions. Governance failures in fintech ecosystems can undermine adoption and system stability, particularly given the sensitivity of digital platforms to cybersecurity risks and the fragility of consumer trust (Suresh et al., 2025). Regulatory conditions also influence the behaviour and direction of digital innovation, indicating that digital bullion transformation requires alignment between technological development and institutional governance readiness (Haomin et al., 2025). Governance-by-design is therefore relevant to digital bullion platform strategy, with cybersecurity measures, compliance controls, transparency mechanisms, and market-risk management incorporated directly into platform operations. The sustainability of digital bullion markets

consequently depends on the capacity of platforms and regulators to establish effective mechanisms for risk mitigation, investor protection, and institutional trust.

A fourth thematic pattern concerns the strategic governance mechanisms required to support sustainable digital bullion transformation. The reviewed studies suggest that sustainable competitiveness in digital bullion markets depends on governance systems capable of ensuring transparency, accountability, and regulatory alignment (Bank for International Settlements, 2020). Such governance encompasses compliance structures, cybersecurity protocols, consumer protection mechanisms, and institutional coordination with regulators. Regulatory governance and institutional arrangements are particularly important in shaping responsible digital innovation and minimizing systemic exposure within fintech-driven investment ecosystems (Mukherjee, 2025; Rizwan et al., 2024). In the digital context, governance extends beyond reactive risk control because it also shapes long-term trust formation and market legitimacy. Governance capability can therefore function as an important differentiator for digital bullion services, given that market acceptance depends substantially on perceptions of reliability, integrity, and fairness. The literature also emphasizes the importance of legal readiness for digital assets and stronger consumer protection mechanisms across digital platforms (Omo-ola & Kaduna, 2023; Terri & Zibei, 2020). Governance readiness consequently becomes closely connected to platform strategy and business model sustainability, positioning strategic governance as a foundation for trust, legitimacy, and resilience in digital bullion transformation.

Overall, the thematic synthesis confirms that digitalization is transforming bullion trading into a platform-mediated ecosystem that creates value through accessibility, service innovation, and inclusion while simultaneously generating heightened exposure to trust, cybersecurity, volatility, and compliance risks. The findings indicate that strategic governance is essential for supporting sustainable competitiveness and long-term legitimacy in digital bullion trading. The synthesis further reveals that digitalization is not a linear technological progression but a multidimensional transformation involving the reconfiguration of market structures, stakeholder relationships, value-creation mechanisms, and governance arrangements. This thematic structure provides the analytical foundation for the subsequent integrative discussion and framework development using the Strategic Management 5.0 lens.

Table 2. Thematic synthesis summary of digital bullion trading literature (2016–2026)

Theme	Description	Key Findings (Evidence Synthesis)	Strategic Implications
Theme 1: Digital platform ecosystem development	Digital bullion trading increasingly occurs via platform-mediated ecosystems integrating fintech infrastructure, digital interfaces, and market connectivity.	Studies show the rise of platformization in commodity investment services and expanded market participation through digital channels, creating new ecosystem relationships between institutions, fintech actors, and customers.	Bullion business competitiveness shifts toward platform strategy, digital service quality, and ecosystem coordination.
Theme 2: Value creation opportunities	Digitalization enables new value propositions in bullion services through innovation, inclusion, and efficiency.	Key opportunities include greater accessibility for retail investors, faster transactions, micro-investment potential, diversified portfolios, and service innovation. Digital finance linkages can broaden market reach and strengthen user adoption.	Digital bullion services should prioritize customer-centric innovation, inclusion strategies, and differentiated digital value propositions.

Theme	Description	Key Findings (Evidence Synthesis)	Strategic Implications
Theme 3: Risks and strategic challenges	Digital bullion markets are exposed to trust, cyber, compliance, and volatility-related risks.	Major risks include cybersecurity threats, fraud exposure, trust deficits, market manipulation, speculative behaviour, and regulatory uncertainties. Digital channels can amplify volatility spillovers and risk transmission between markets.	Digital bullion transformation requires risk-centric strategy, stronger compliance design, cyber resilience, and trust-building mechanisms.
Theme 4: Strategic governance mechanisms	Governance becomes central to ensuring legitimacy, sustainability, and market stability in digital bullion operations.	Governance mechanisms include transparency, accountability, risk governance, consumer protection, cybersecurity controls, and regulator coordination. Strategic governance is repeatedly highlighted as the determinant of platform legitimacy.	Sustainable competitiveness depends on strategic governance capability integrated with digital capability development and institutional alignment.
Integrated framework (Strategic Management 5.0 lens)	The synthesis supports an integrative framework combining digital capability, governance, and human-centric value creation.	The literature collectively indicates that digital bullion success requires capability development plus governance and trust-building, rather than technology adoption alone.	Strategic Management 5.0 enables a roadmap integrating digital capability + governance + human-centric orientation, guiding sustainable digital bullion transformation.

Across the reviewed studies, digital platforms emerge as the central organizing architecture that connects traditional bullion institutions with fintech innovators, regulators, and a broadening base of retail and institutional investors. This platform-mediated environment expands market accessibility and enables new forms of service delivery, yet it simultaneously intensifies interdependencies that require coordinated strategic responses from all ecosystem actors. Moreover, the literature emphasizes that digital bullion markets can only be sustainable if they develop digital capabilities alongside strong governance. While technological innovation enhances efficiency, inclusion, and product diversification, inadequate trust mechanisms, cybersecurity safeguards, and regulatory alignment can undermine market legitimacy and long-term competitiveness. These findings form the basis for the thematic mapping in Table 2, which consolidates the key evidence and strategic implications under the Strategic Management 5.0 perspective.

3.3 Integrative discussion: Strategic management 5.0 perspective

As shown in Table 2, the literature demonstrates that digitalization in bullion trading is not limited to technology adoption but represents a broader strategic shift toward platform ecosystem development, customer-centric value creation, and governance-driven sustainability. The thematic synthesis indicates that digital bullion services create opportunities through accessibility, efficiency, financial inclusion, service innovation, and

new investment formats. At the same time, accelerating digitalization increases exposure to trust deficits, cybersecurity threats, fraud, regulatory uncertainty, and market volatility. Therefore, the reviewed studies collectively suggest that sustainable digital bullion transformation requires the integration of technological capability, value creation, and strategic governance rather than technology adoption alone.

The review further shows that platform-mediated ecosystem dynamics increasingly shape digital bullion trading, with fintech services, digital investment interfaces, and integrated customer experiences becoming important competitive differentiators. These dynamics create new interdependencies among incumbent financial institutions, fintech entrants, regulators, and end-users, indicating that bullion digitalization should be understood as an ecosystem-level transformation rather than a simple technology upgrade. In this environment, ecosystem coordination becomes a strategic capability for sustaining competitiveness, particularly by ensuring market legitimacy, regulatory alignment, and trust formation across digital bullion services (Senyo et al., 2024). Platform-based bullion services can generate efficiency and accessibility gains, but their long-term viability depends on strategic coordination among ecosystem actors. This transformation therefore requires bullion business actors to move beyond product-centric models toward platform and service innovation, in which customer engagement, digital experience quality, trust development, and stakeholder governance become integral components of the strategic architecture.

The thematic evidence also demonstrates that digitalization can create differentiated value through accessibility, efficiency, inclusion, and service innovation. However, digitizing transactions alone does not guarantee sustainable value creation. Digital bullion services must strengthen customer trust, transparency, and user experience, particularly as retail participation expands. The increasing interest in gold-linked digital assets and “digital gold” narratives indicates that investors increasingly evaluate bullion-related products within a broader digital investment landscape (Dyhrberg, 2016; Shahzad et al., 2019). In addition, digital finance innovations, including DeFi linkages, may influence commodity markets such as gold (Cevik et al., 2022). These developments create opportunities for flexible investment formats, micro-investment, and portfolio diversification, but they also increase the importance of institutional credibility and governance readiness in maintaining market legitimacy and sustainability.

At the same time, risk management emerges as a central strategic requirement. The literature repeatedly identifies trust deficits, cybersecurity vulnerabilities, fraud exposure, and regulatory uncertainty as barriers to sustainable adoption and legitimacy (World Economic Forum, 2020). Fintech governance studies further indicate that digital finance ecosystems are highly sensitive to cyber threats and governance failures, which can undermine user confidence and systemic stability (Suresh et al., 2025). Regulatory conditions also shape digital innovation behaviour, suggesting that successful digital bullion transformation requires not only internal technological capabilities but also alignment with institutional and regulatory governance (Haomin et al., 2025). Consequently, governance-by-design should be embedded within digital bullion operations by integrating cybersecurity, compliance controls, transparency, fraud prevention, accountability, and consumer protection into the core of business strategy rather than treating them as supporting functions.

Building on these findings, this study positions Strategic Management 5.0 as an integrative lens for interpreting and guiding digital bullion transformation. Strategic Management 5.0 emphasizes the strategic synergy between digital transformation, sustainability orientation, and human-centric value creation. This perspective is particularly relevant to digital bullion business because bullion markets are simultaneously shaped by technological innovation, trust-based legitimacy, customer expectations, and long-term institutional stability. Drawing on the SGDSM (Strategic Green Digital Synergy Model) in Strategic Management 5.0 (Imbrani et al., 2026), the thematic synthesis identifies three interconnected strategic pillars for sustainable digital bullion transformation.

First, Digital Capability Development refers to the capacity to develop platform-based service innovation, integrate fintech infrastructures, ensure scalability, and generate ecosystem-level value. Second, Strategic Governance and Risk Control encompasses mechanisms for cybersecurity resilience, regulatory and compliance alignment, transparency, fraud prevention, accountability, and consumer protection. Third, Human-Centric Value Creation focuses on user trust, customer experience, ethical digital finance, inclusion, and fairness as foundations for long-term legitimacy. These pillars should not be treated as independent dimensions; rather, their strategic value emerges from their integration. Digital capability without governance may increase exposure to systemic and reputational risks, while governance without effective digital capability may constrain innovation and value creation. Similarly, technological and governance improvements may have limited long-term impact if they fail to address user trust, experience, inclusion, and perceived fairness.

Accordingly, the Strategic Management 5.0 perspective provides an integrative explanation of digital bullion transformation by connecting technological capability, governance resilience, and human-centric value creation within a single strategic architecture. The findings suggest that sustainable competitiveness in digital bullion business depends not simply on how effectively firms digitize bullion transactions, but on how effectively they coordinate digital capabilities, governance mechanisms, and human-centred value creation across the wider ecosystem. This synthesis provides the conceptual foundation for the proposed Strategic Green Digital Synergy Model (SGDSM)-based framework developed in the subsequent section.

3.4 Proposed conceptual framework: Strategic management 5.0 for digital bullion transformation (SGDSM-Based)

Based on the evidence synthesis, this study proposes an integrative framework that connects drivers, strategic mechanisms, and outcomes of digital bullion transformation. The framework positions Strategic Management 5.0 (SGDSM) as the overarching strategic architecture for building sustainable competitiveness. The framework's logic begins with antecedents and drivers, including market demand for accessibility and efficiency, fintech ecosystem development and innovation, digital gold investment behaviour and market convergence (Dyhrberg, 2016; Fang et al., 2019), and regulatory evolution alongside institutional readiness. These drivers activate the strategic mechanisms represented by the three SGDSM pillars: digital capability development, strategic governance and risk management, and human-centric value creation.

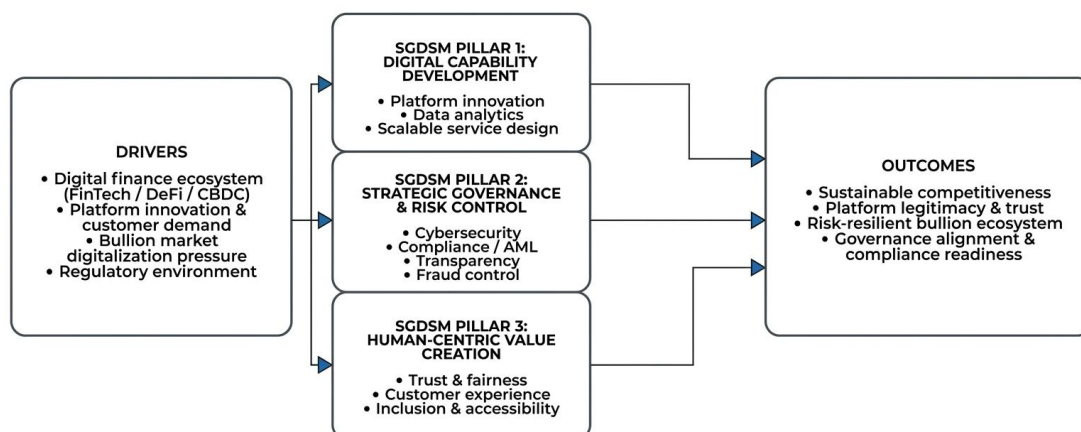


Fig. 2. Strategic management 5.0 (SGDSM)-based framework for digital bullion transformation

The intended outcomes of this integrated process are platform legitimacy and customer trust, sustainable competitive advantage in bullion services, risk-resilient growth

and regulatory compliance, and long-term market stability. By integrating these dimensions, the framework translates the three themes identified in the evidence synthesis into a strategic pathway in which technological capability, governance and risk management, and human-centric value creation jointly shape the sustainability and competitiveness of digital bullion transformation. The framework therefore provides a conceptual basis for understanding how digital bullion platforms can respond to emerging opportunities while managing institutional, technological, and market-related risks. Figure 2 illustrates the Strategic Management 5.0 (SGDSM)-Based Framework for Digital Bullion Transformation.

3.5 Implications and future research directions

The findings of this review provide implications for both managerial practice and public policy. From a managerial perspective, bullion business actors should adopt platform strategy as a core competitive architecture rather than treating digitalization merely as a supporting operational tool. Firms should institutionalize cybersecurity, regulatory compliance, and risk management as strategic functions embedded directly into platform design and business processes. Investment in customer trust-building mechanisms, including transparency, fair pricing, consumer protection, and ethical digital service delivery, should likewise be regarded as central components of long-term adoption and competitiveness. These managerial priorities are consistent with the Strategic Management 5.0 perspective, which emphasizes the integration of digital capability, strategic governance, and human-centric value creation.

From a policy perspective, regulators should strengthen governance frameworks for digital bullion ecosystems by emphasizing consumer protection, platform transparency, cybersecurity readiness, and regulatory accountability. Policy interventions should also encourage responsible innovation by establishing a balanced regulatory environment that supports digital platform development while limiting unnecessary systemic risk exposure (Friedline & Chen, 2020). Such an approach can help align institutional stability, market legitimacy, and innovation scalability within emerging digital bullion ecosystems. Given the cross-sector and ecosystem-based nature of digital bullion services, effective governance also requires coordination among financial institutions, fintech providers, technology platforms, regulators, and consumer-protection stakeholders.

Despite these implications, several gaps remain in the literature and provide directions for future research. Future studies could examine governance-by-design models specifically developed for digital bullion trading platforms, investigate behavioural and trust-related determinants of digital gold adoption across different demographic and institutional contexts, and conduct comparative analyses of regulatory frameworks across countries. Further research should also empirically test the proposed Strategic Management 5.0 framework within digital bullion ecosystems using quantitative, qualitative, or mixed-method approaches. Such empirical validation would help determine whether the proposed integration of digital capability development, strategic governance and risk control, and human-centric value creation adequately explains variation in platform adoption, trust, resilience, and sustainable performance across different digital bullion contexts.

3.6 Digital bullion trading in the global fintech ecosystem and comparative institutional context

The rapid expansion of digital finance has fundamentally transformed the architecture of financial markets, including commodity investment services such as bullion trading. In the traditional market structure, bullion transactions were largely conducted through physical markets, banks, or commodity exchanges. However, the increasing integration of fintech infrastructure, digital platforms, and online investment applications has significantly altered the way bullion products are accessed, traded, and managed by investors. Digital bullion trading platforms now enable individuals to invest in precious

metals through mobile applications, digital wallets, and platform-mediated investment services. This transformation represents not only technological adoption but also a strategic restructuring of commodity market participation within the broader digital finance ecosystem.

Globally, several platforms illustrate how digital bullion investment is becoming integrated into the fintech landscape. In India, digital gold services offered by platforms such as Paytm Gold and PhonePe allow users to purchase small quantities of gold through mobile payment applications. These platforms partner with bullion vault providers and financial institutions to ensure that the digital gold purchased is backed by physical reserves. Similarly, in China, digital gold investment services have been integrated into the broader financial ecosystem through platforms associated with large technology firms, including Ant Financial. These platforms combine financial technology capabilities, mobile payment infrastructure, and investment services to provide seamless digital gold transactions to millions of retail investors. In Indonesia, the digitalization of bullion trading has also progressed through regulated financial institutions and fintech-enabled investment platforms. Services such as digital gold investment applications provided by state-owned enterprises and fintech startups allow retail investors to purchase and store gold digitally without requiring physical possession of the commodity. These developments illustrate how digital platforms reduce entry barriers for commodity investment, enabling individuals to participate in precious metal markets with relatively small investment amounts and thereby contributing to financial inclusion.

The integration of bullion trading within fintech ecosystems also introduces new forms of financial innovation. Digital gold investment services increasingly interact with emerging financial technologies such as blockchain, decentralized finance (DeFi), and tokenized asset systems. Tokenized gold platforms, for example, allow investors to trade digital tokens representing ownership of physical gold stored in secure vaults. These tokens can be transferred, traded, or integrated into decentralized financial applications, enabling bullion assets to participate in broader digital financial networks. As a result, bullion markets are no longer isolated commodity markets but become embedded within interconnected digital financial ecosystems. Despite these opportunities, the expansion of digital bullion platforms raises significant strategic and regulatory challenges. One major concern relates to the credibility and transparency of digital bullion platforms. Investors must trust that digital gold holdings are genuinely backed by physical bullion reserves and that custodial systems are secure. In addition, digital platforms introduce cybersecurity risks, including hacking, fraud, and data breaches, which may undermine investor confidence. Consequently, trust and governance mechanisms become critical factors influencing the adoption and sustainability of digital bullion platforms.

From a strategic perspective, the evolution of digital bullion trading highlights the increasing importance of platform ecosystems in shaping financial market dynamics. Platform ecosystems involve networks of actors including financial institutions, fintech firms, regulators, technology providers, and investors. The effectiveness of these ecosystems depends on coordination between technological capability, regulatory frameworks, and institutional governance. Firms operating in digital bullion markets must therefore develop strategic capabilities not only in technology adoption but also in ecosystem management and stakeholder coordination. The rise of digital bullion trading is also closely connected to changing investor behaviour in the digital era. Investors increasingly seek flexible, accessible, and digitally mediated investment opportunities. The concept of “digital gold” has gained popularity among investors who view digital bullion services as convenient alternatives to traditional gold investment channels. This shift reflects broader trends in financial digitalization, where investment decisions are influenced by digital user experience, platform accessibility, and technological convenience.

While digital bullion trading is expanding globally, the institutional and regulatory environments surrounding these platforms vary significantly across countries. These differences shape the development trajectories, adoption rates, and governance structures of digital bullion services. In emerging markets such as Indonesia and India, digital bullion

platforms often emerge as part of broader financial inclusion initiatives. Governments and financial institutions encourage digital investment services as mechanisms to expand access to financial markets among previously underserved populations. Digital gold investment services allow individuals with limited capital to invest in precious metals through small-denomination purchases and are frequently positioned as tools for financial inclusion and retail investment participation. In contrast, in developed financial markets, digital bullion services tend to focus more on innovation in financial products and investment diversification. Tokenized gold platforms and digital asset exchanges in Europe and North America emphasize integration with digital asset markets and blockchain-based financial infrastructure, enabling investors to trade gold-backed tokens alongside cryptocurrencies and other digital assets. As a result, digital bullion trading becomes part of a broader digital asset ecosystem rather than a standalone commodity investment service.

Regulatory frameworks also play a decisive role in shaping digital bullion markets. In countries with strong financial regulatory systems, digital bullion platforms are typically required to comply with strict governance standards, including transparency requirements, custodial verification, and investor protection mechanisms. Regulators may require platforms to demonstrate that digital gold holdings are backed by physical bullion reserves stored in secure vaults. These regulatory mechanisms help maintain investor confidence and prevent fraudulent practices. However, in some jurisdictions, regulatory uncertainty may slow the development of digital bullion services. Ambiguities regarding the classification of digital assets, tokenized commodities, or fintech platforms may create challenges for firms seeking to introduce innovative bullion investment products. In such contexts, regulatory clarity becomes essential for enabling responsible innovation while minimizing systemic risks.

Another important institutional factor concerns the role of trust in digital investment services. Commodity investment traditionally relies on tangible assets such as physical gold stored in vaults. Digital bullion platforms must therefore replicate this trust through technological and institutional mechanisms. Transparency in asset backing, secure custody arrangements, and credible regulatory oversight are crucial for maintaining investor confidence. Without such mechanisms, digital bullion markets may face skepticism from investors concerned about asset authenticity and platform reliability. Institutional trust is also influenced by the credibility of platform providers. Platforms operated by established financial institutions may enjoy greater investor trust compared to those managed by new fintech startups. Partnerships between fintech firms and traditional financial institutions therefore play an important role in strengthening the legitimacy of digital bullion platforms by combining technological innovation with institutional credibility. From a strategic perspective, the comparative analysis of digital bullion platforms highlights that successful digital bullion ecosystems require alignment between technological innovation, regulatory governance, and institutional trust. Markets that achieve this alignment are more likely to develop sustainable digital bullion services capable of supporting long-term investor participation and financial market stability.

3.7 Strategic implications, limitations, and future research directions

The transformation of bullion trading into a digitally mediated ecosystem has important implications for business strategy. Firms operating in digital bullion markets must rethink traditional commodity trading models and adopt platform-based strategies that emphasize digital service innovation, customer experience, and ecosystem collaboration. Digital capability development becomes a central strategic requirement, requiring investment in technological infrastructure that enables secure digital transactions, scalable investment platforms, and user-friendly digital interfaces. Mobile accessibility, secure payment systems, and efficient trading mechanisms are essential components of digital bullion platforms. Without robust technological capabilities, firms may struggle to remain competitive in increasingly digitalized commodity investment markets.

Trust-building mechanisms should also be embedded within digital bullion platforms. Investor confidence depends heavily on perceptions of security, transparency, and regulatory compliance. Firms should therefore implement strong cybersecurity measures, transparent asset-verification mechanisms, and clear regulatory compliance structures to enhance credibility and protect investors from fraud and technological vulnerabilities. Digital bullion platforms should further adopt customer-centric value propositions, as digital investors increasingly evaluate investment platforms based on ease of use, transaction convenience, and service reliability. Intuitive digital interfaces, transparent pricing structures, and responsive customer support can strengthen the overall customer experience and contribute to investor retention as competition within digital investment markets intensifies.

Strategic collaboration within fintech ecosystems is similarly important. Digital bullion platforms operate within interconnected financial ecosystems involving payment providers, fintech firms, financial institutions, technology providers, and regulatory authorities. Collaboration among these actors can provide access to technological capabilities, regulatory expertise, financial infrastructure, and broader market networks necessary for sustainable platform operation. Successful integration into wider fintech ecosystems may also generate network effects and support platform scalability. In parallel, governance-by-design principles should be incorporated into digital bullion business models, with compliance systems, cybersecurity protocols, consumer protection mechanisms, asset verification, and transparent governance structures embedded within platform architecture rather than treated solely as external regulatory requirements. Collectively, these strategic requirements indicate that digital bullion competitiveness depends on the integration of digital capability, governance readiness, ecosystem collaboration, and customer-centric value creation.

The strategic implications should, however, be interpreted in light of several limitations of this study. First, the review focused exclusively on Scopus-indexed journal publications, which may have excluded relevant evidence from other academic databases and high-quality practitioner or institutional reports. Second, the RSLR approach prioritizes timely and structured synthesis but may provide less comprehensive coverage than full-scale systematic reviews incorporating multiple databases and broader evidence sources. Third, although the study proposes an integrative Strategic Management 5.0 framework based on thematic synthesis, the framework remains conceptual and has not yet been empirically tested within specific digital bullion platform contexts. These limitations constrain the extent to which the proposed framework can currently be generalized across different markets and institutional environments.

Future research should therefore extend the present findings through empirical and comparative investigation. First, the proposed SGDSM-based framework should be empirically tested using quantitative, qualitative, or mixed-method approaches across different national and regulatory contexts. Second, further research should examine governance-by-design mechanisms in digital bullion platforms, particularly cybersecurity architecture, fraud prevention, asset verification, and compliance integration as strategic capabilities. Third, behavioural studies examining trust formation, adoption intention, perceived value, and customer experience can strengthen understanding of human-centric value creation in bullion digitalization. Finally, comparative research across regulatory systems and institutional environments may provide deeper insights into how regulatory design, governance capacity, and ecosystem structures shape sustainable innovation and competitiveness in digital bullion markets.

4. Conclusions

This study conducted a Rapid Systematic Literature Review (RSLR) to synthesize Scopus-indexed research on the digitalization of bullion trading published between 2016 and 2026. The review demonstrates that bullion trading digitalization has evolved into a platform-mediated ecosystem, driven by fintech innovation, changing investor behaviour,

and growing demand for accessible digital investment services. The thematic synthesis highlights four dominant insights: (1) the emergence of digital platform ecosystems reshaping bullion market structures; (2) value creation opportunities through service innovation, efficiency, and wider market access; (3) increased exposure to strategic risks including trust deficits, cybersecurity threats, volatility spillovers, and compliance challenges; and (4) the central role of strategic governance mechanisms in sustaining legitimacy and resilience.

To address these dynamics, this study proposed an integrative framework based on Strategic Management 5.0 using the SGDSM (Strategic Green Digital Synergy Model) approach. The framework emphasizes that sustainable digital bullion transformation depends on the synergy between digital capability development, strategic governance and risk control, and human-centric value creation. By offering this integrative lens, the study contributes to strategic management and digital finance literature by moving beyond conventional price and safe-haven discussions toward a governance-oriented, strategy-driven understanding of digital bullion business transformation. Practically, the findings provide a strategic roadmap for bullion business actors and regulators to strengthen trust, cybersecurity readiness, transparency, and regulatory alignment in digital bullion operations.

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Author Contribution

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The data used in this study are included in this article. The dataset supporting this study's conclusions was derived from published scholarly literature identified through the PRISMA-based screening process.

Conflicts of Interest

The authors declare no conflict of interest.

Declaration of Generative AI Use

The authors declare that they used generative AI tools only for language refinement and formatting improvement. The authors developed all scientific content, evidence synthesis, interpretation, and conclusions based on the reviewed literature.

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