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From VAIC To Value: A Systematic Review of Intellectual Capital, Reporting Practices, And Performance Across Sectors and Regions

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A R T I C L E I N F O

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A B S T R A C T

This systematic literature review synthesizes recent accounting evidence on intellectual capital (IC) by linking measurement, disclosure, governance, and sustainability-oriented value creation. Following a PRISMA-based process, 215 Scopus records were screened and 29 studies published during 2016-2025 were retained for thematic synthesis; earlier seminal works were used only to establish theory. The review shows that VAIC/MVAIC are consistently associated with accounting performance, whereas market-value effects are more contingent on disclosure quality, governance, sector, and institutional context. The study's novelty is an accounting-centered framework that connects IC efficiency with reporting credibility and emerging digital-sustainability conditions. The findings support more comparable IC metrics, stronger disclosure governance, and context-sensitive interpretation of intangible value creation.

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INTRODUCTION

Intellectual capital (IC) has become a central accounting explanation for value creation as organizations increasingly depend on knowledge, capabilities, innovation, and relationships that are only partially recognized by conventional financial statements. Contemporary research distinguishes between intellectual capital efficiency (ICE), which captures how effectively knowledge-based resources generate value, and intellectual capital disclosure (ICD), which communicates those resources to capital-market and other stakeholders. This distinction is important because accounting outcomes and market outcomes need not respond to IC in the same way: internally productive knowledge resources may improve profitability even when external users cannot fully observe or credibly assess them.

The state of the art has advanced along several strong but partly separated streams. Paoloni et al. (2023) synthesize 1,021 Scopus-indexed studies on IC measurement and reporting and show that measurement methods, internal and external disclosure, and corporate social responsibility remain major research areas. Rieg and Vanini (2023), through a meta-analysis of 40 primary studies and 122 effects, find that voluntary ICD is generally value relevant but also highly heterogeneous across settings. More recently, Abdallah et al. (2025) integrate 170 peer-reviewed studies on IC antecedents and consequences and emphasize the growing importance of governance, firm performance, and the distinction between ICE and ICD. Together, these reviews demonstrate a mature field, but they also show that measurement, reporting, governance, and value consequences are often analyzed as adjacent rather than jointly interacting accounting mechanisms.

This creates a specific research gap. Existing reviews map the breadth of IC scholarship or isolate disclosure value relevance, yet less attention is given to why the same IC base can produce strong accounting returns but uneven market valuation across sectors and institutional settings. The unresolved issue is therefore not simply whether IC matters, but how measurement choice (VAIC/MVAIC and alternatives), disclosure credibility, governance architecture, and digital-sustainability conditions jointly shape the translation of intangible resources into observable value. This review addresses that gap by synthesizing recent empirical accounting evidence from 2016-2025 around a measurement-reporting-governance-contingency logic. Its novelty lies in connecting ICE and ICD rather than treating them as separate literatures, and in explaining variation in financial versus market outcomes through governance, institutional, digital, and sustainability conditions. Accordingly, the review asks how IC is measured, how it is reported, which governance mechanisms condition its use and disclosure, and under what circumstances it becomes economically and market relevant.

LITERATURE REVIEW

Resource-Based View and Knowledge-Based View

The Resource-Based View (RBV) explains sustained competitive advantage through valuable, rare, difficult-to-imitate, and non-substitutable resources (Barney, 1991). IC fits this logic because employee knowledge, organizational routines, innovation capability, and relational networks are intangible resources that competitors cannot easily reproduce. The Knowledge-Based View (KBV) extends this perspective by treating knowledge creation, integration, and learning as the primary mechanisms of organizational adaptation and innovation (Nonaka & Takeuchi, 1995). These perspectives provide the theoretical basis for linking IC efficiency to performance.

Signaling and Legitimacy Perspectives

Signaling theory suggests that firms disclose IC information to reduce information asymmetry and communicate organizational quality to investors and other stakeholders (Spence, 1973). Legitimacy theory adds that reporting also helps firms demonstrate alignment with societal expectations and institutional norms (Suchman, 1995). These perspectives are particularly relevant to IC because much of its value is not recognized directly in conventional balance sheets, making narrative, integrated, and sustainability reporting important channels of communication.

Measurement Development: VAIC and MVAIC

VAIC operationalizes intellectual efficiency through human capital efficiency, structural capital efficiency, and capital employed efficiency (Pulic, 2000). MVAIC and related extensions attempt to address criticisms that the original model incompletely represents relational and innovation resources (Nazari & Herremans, 2007; Ståhle et al., 2011). Ahmad (2023), for example, develops a modified VAIC approach that incorporates innovation and relational capital and adjusts for exogenous factors. The continuing evolution of these models reflects the broader movement from simple accounting proxies toward more comprehensive measures of intangible value.

State of the Art, Research Gap, and Novelty

Prior reviews establish three important foundations: IC measurement and reporting are extensive but methodologically diverse (Paoloni et al., 2023); voluntary ICD is value relevant on average but heterogeneous across primary studies (Rieg & Vanini, 2023); and contemporary IC research increasingly distinguishes antecedents and consequences of both ICE and ICD (Abdallah et al., 2025). Building on these advances, the present review narrows the analytical lens to recent accounting evidence and focuses on the mechanism connecting resource efficiency, reporting visibility, governance quality, and contextual moderators. Rather than proposing another broad map of the IC field, it develops a contingent accounting interpretation of why IC can be financially productive without being equally reflected in market value. This bridge between internal

efficiency and external visibility is the principal conceptual contribution of the review.

Integrative Review Framework

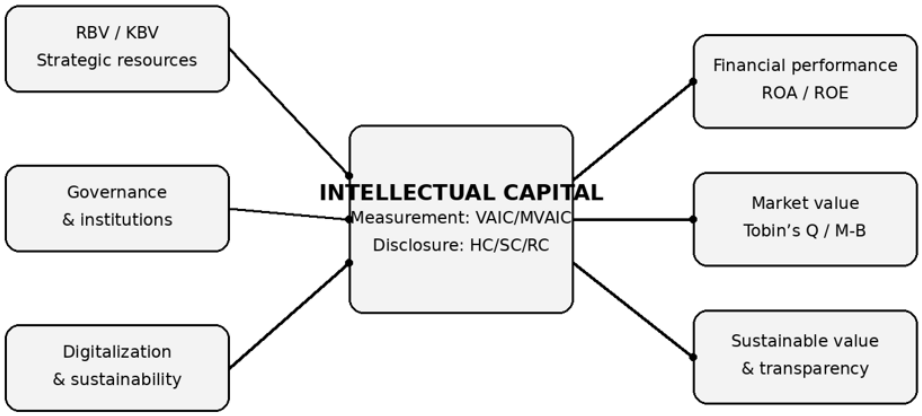


Figure 1. Integrative framework for intellectual capital measurement, disclosure, and value creation

METHODOLOGY

This study uses a systematic literature review (SLR) reported with reference to PRISMA 2020 principles (Page et al., 2021). The structured search centered on Scopus and targeted accounting and business research concerned with intellectual capital, firm performance, value creation, and corporate reporting. The initial search covered publications from 2000 to 2025 so that the historical development of the field could be observed. For the empirical synthesis, however, the eligibility process retained journal articles published during 2016-2025; seminal pre-2016 works were used only to establish theoretical and measurement foundations and were not counted among the 29 included studies. This distinction avoids conflating background literature with the final review sample.

The Scopus search yielded 215 records. Sequential eligibility filters retained 142 records published during 2016-2025, 107 journal articles, and 106 English-language articles. Manual scope screening then excluded 77 records that did not directly address the review's accounting focus on IC measurement, disclosure, governance, performance, or value creation, leaving 29 studies for thematic synthesis. The synthesis was organized into four analytically connected themes: (1) IC measurement and firm performance; (2) IC disclosure and reporting; (3) governance and organizational antecedents; and (4) digitalization and sustainability as cross-cutting conditions. No additional observations, effect sizes, or study characteristics were inferred when they were not reported in the source articles.

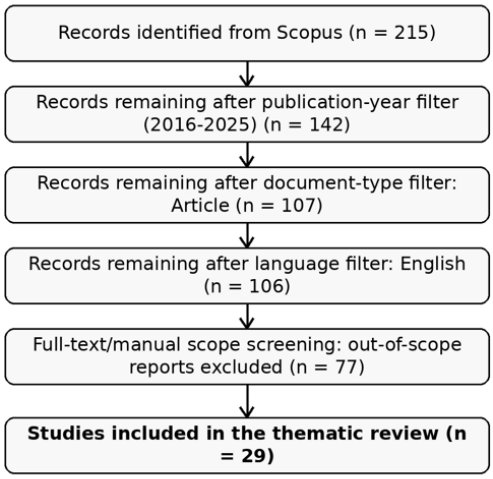


Figure 2 PRISMA based screening and selection process

Methodological quality was considered qualitatively through the transparency of research design, appropriateness of IC operationalization, adequacy of the empirical setting, alignment between analytical method and research question, and clarity of reported findings. Because the included literature spans different designs and outcomes, the review does not convert these judgments into a common numerical quality score or pooled causal effect. The purpose is interpretive synthesis: to identify convergent patterns, contradictions, boundary conditions, and accounting implications without overstating comparability across heterogeneous studies.

RESEARCH RESULT

Theme 1: Measuring Intellectual Capital and Firm Performance

The first theme confirms that VAIC and MVAIC remain the dominant operational measures of IC. Across emerging and developed markets, IC efficiency is generally associated with stronger accounting performance, while evidence for market value is more heterogeneous. Odat and Bsoul (2022) report a positive association between VAIC and ROA in Jordan but no significant relationship with market value. Al Farooque et al. (2023) find broadly convergent IC effects across Islamic and conventional GCC banks, with stronger accounting effects in conventional banks. Jordão et al. (2025) show that IC measured using IC-INDEX and MVAIC contributes consistently to sustainable value creation in Brazilian listed firms. Ahmad (2023) further demonstrates that adding innovation and relational capital improves the explanatory capacity of VAIC-type models.

Study	Context	Method/Measure	Main Finding
Odat & Bsoul (2022)	Jordan; 113 listed firms	VAIC; ROA; market-to-book	VAIC positively relates to financial performance but not market value.
Al Farooque et al. (2023)	GCC Islamic and conventional banks	VAIC/MVAIC; GMM	IC effects largely converge; accounting effects are stronger in conventional banks.
Ahmad (2023)	US non-financial firms, 1980-2019	Modified VAIC	Innovation and relational components improve IC measurement and value explanation.
Debnath et al. (2023)	India; FMCG and IT firms	VAIC; ROA	Human and structural capital positively affect accounting performance.
Jordão et al. (2025)	Brazilian listed firms	IC-INDEX and MVAIC	IC is directly and consistently related to sustainable value creation.

Table 1. Representative evidence on IC measurement and performance

Theme 2: Intellectual Capital Disclosure and Reporting

The second theme shows that IC disclosure is both a reporting practice and a strategic communication mechanism. Mardini and Elleuch Lahyani (2022) find that firm performance and several governance attributes influence IC disclosure in CEO statements of French firms. Rajabalizadeh and Oradi (2022), by contrast, document a negative association between managerial ability and IC disclosure in Iran, suggesting that managerial capability can substitute for narrative transparency in some institutional settings. Ousama (2024) reports an average IC reporting extent of 0.408 in Qatari listed companies, with external capital more frequently reported than human capital. Goswami and Maji (2025) find that greater IC disclosure is associated with higher market capitalization in both knowledge-based and traditional Indian firms.

Study	Region	Approach	Main Finding
Mardini & Elleuch Lahyani (2022)	France	CEO-statement ICD index; panel models	Performance, board diversity, CEO traits, and institutional ownership shape ICD.
Rajabalizadeh & Oradi (2022)	Iran	62-item content analysis; PSM	Managerial ability is negatively associated with overall and component ICD.
Ousama (2024)	Qatar	Integrated-reporting IC index	Average IC reporting = 0.408; external capital dominates human capital.
Goswami & Maji (2025)	India	IC disclosure score; pooled OLS	IC disclosure positively associates with firm market value across two sector types.
Liu et al. (2024)	Australia health care	Total value reporting index; OLS	Board capital improves the quality and extent of connected value reporting.

Table 2. Representative evidence on IC disclosure and reporting

Theme 3: Governance and Organizational Antecedents

Governance characteristics repeatedly appear as antecedents of both IC efficiency and IC disclosure. Shahzad et al. (2020) show that IC efficiency fully mediates the relationship between board gender diversity and firm performance in US listed firms. Shahzad et al. (2022) similarly report that IC efficiency partially

mediates the CSR-performance relationship. Liu et al. (2024) demonstrate that board gender diversity and multiple directorships improve total value reporting. These findings indicate that governance influences IC through two pathways: it shapes the internal creation and deployment of knowledge resources and it affects the credibility and breadth of external reporting.

Study	Governance Pathway	Synthesis
Shahzad et al. (2020)	Board gender diversity -> IC efficiency -> performance	IC efficiency fully mediates the governance-performance relationship.
Shahzad et al. (2022)	CSR -> IC efficiency -> performance	IC efficiency partially mediates the CSR-performance relationship.
Liu et al. (2024)	Board capital -> total value reporting	Gender diversity and multiple directorships improve reporting quality.
Mardini & Elleuch Lahyani (2022)	Board/CEO attributes -> ICD	Cultural and gender diversity, CEO traits, and institutional ownership affect ICD.
Rajabalizadeh & Oradi (2022)	Managerial ability -> ICD	Higher managerial ability is associated with lower ICD, especially in weaker-performing firms.

Table 3. Governance and organizational antecedents of IC outcomes

Theme 4: Digitalization and Sustainability

Digitalization and sustainability increasingly redefine the IC agenda. Sustainability disclosure strengthens the market relevance of IC in Thai firms (Suksarmrong et al., 2023), while Jordão et al. (2022) show that IC contributes to sustainable economic and financial performance over a long horizon in Brazil. Ousama (2024) and Liu et al. (2024) illustrate how integrated and connected reporting frameworks increase the visibility of intangible resources. These developments support a shift from treating IC as a static accounting proxy toward viewing it as a dynamic capability embedded in digital reporting infrastructures and ESG-oriented value creation.

Study	Context	Implication
Suksarmrong et al. (2023)	Thailand	Sustainability disclosure moderates VAIC-performance relations and strengthens market relevance.
Jordão et al. (2022)	Brazil	IC positively affects sustainable economic/financial performance and value creation over time.
Ousama (2024)	Qatar	Integrated reporting provides a structured channel for intangible-capital visibility.
Liu et al. (2024)	Australia	Double-materiality reporting connects governance, IC-related information, and broader value creation.
Albertini et al. (2021)	Europe	CEO narratives show how firms frame intellectual-capital sources of value in discretionary reporting.

Table 4. Digitalization and sustainability as cross-cutting IC conditions

DISCUSSION

The review yields four substantive insights. First, the evidence supports a distinction between value creation and value recognition. VAIC/MVAIC-based studies frequently associate IC efficiency with profitability and operating performance, but market-based effects are less uniform because investors observe IC through imperfect disclosure channels and institutionally conditioned signals. This interpretation is consistent with the meta-analytic evidence that voluntary ICD is value relevant on average but characterized by substantial heterogeneity (Rieg & Vanini, 2023). It is also consistent with recent cross-context studies showing that the performance consequences of IC depend on measurement design, sector, and market setting (Al Farooque et al., 2023).

Second, measurement and disclosure should be treated as complementary accounting mechanisms. Efficiency models such as VAIC/MVAIC approximate the internal conversion of human, structural, relational, and employed capital into value, while ICD determines how much of that value-creation logic is externally visible and credible. Paoloni et al. (2023) similarly show that measurement and reporting have evolved as interconnected but methodologically fragmented streams. The synthesis here extends that insight by arguing that divergence between accounting performance and market valuation can arise when internal IC productivity is not matched by comparable, decision-useful external reporting.

Third, governance operates as an enabling architecture rather than merely a control variable. Board diversity, managerial ability, ownership structure, and board capital influence both the development of knowledge resources and the credibility of their disclosure. The direction is not universally positive: Mardini and Elleuch Lahyani (2022) document governance-related variation in ICD, whereas Rajabalizadeh and Oradi (2022) show that higher managerial ability can coincide with lower disclosure intensity. The contradiction is theoretically meaningful because governance may either complement disclosure by improving accountability or substitute for disclosure when managers rely on private capabilities and discretionary communication.

Fourth, sustainability and digital reporting create a new frontier for IC accounting. Integrated reporting, ESG-oriented disclosure, analytics, and machine-readable reporting broaden the channels through which intangible resources can be made visible, but the reviewed evidence does not justify assuming that digitalization automatically creates value. The stronger conclusion is conditional: digital and sustainability infrastructures can improve the measurability, traceability, and credibility of IC when they are supported by governance and decision-useful reporting. This contingent interpretation helps connect the recent antecedent-consequence literature (Abdallah et al., 2025) with evidence that sustainability-related disclosure can strengthen the market relevance of IC (Suksarmrong et al., 2023).

CONCLUSIONS AND RECOMMENDATIONS

This review synthesizes 29 included studies published during 2016-2025, while using earlier seminal works only as theoretical and measurement foundations. The evidence indicates that intellectual capital is most consistently associated with accounting performance through the efficient use of human, structural, relational, and employed capital, whereas its market-value implications are more contingent. VAIC and MVAIC remain influential because they provide replicable efficiency measures, but their explanatory limits reinforce the need to interpret them alongside disclosure quality, governance, sectoral knowledge intensity, and institutional context. The principal contribution is therefore not a universal claim that IC always increases firm value, but a contingent accounting explanation of when internally productive intangibles become externally visible and value relevant.

For practice, firms should combine quantitative IC-efficiency indicators with structured narrative disclosure so that intangible value creation can be assessed internally and communicated externally. Boards and audit-related governance mechanisms should pay particular attention to the consistency between reported IC narratives and the underlying economic drivers of performance. For standard setters, the evidence favors greater comparability in voluntary IC metrics and clearer links between intellectual resources, business models, sustainability information, and value creation, while avoiding a one-size-fits-all disclosure model that ignores sectoral and institutional differences.

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