Klabat Journal of Management
Volume 7 Number 1 (2026)
February 2026
Page: 1-22

ISSN: 2721-690X
P-ISSN: 2722-726X
DOI: https://doi.org/10.60090/kjm.v4i

Implementation of the Balanced Scorecard in Higher Education Performance Management: A Comparative Study Between Indonesia and International Cases

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Received:
27 Juni 2025

Revised:
31 Juli 2025

Accepted:
29 August 2025

Abstract

Global higher education institutions (HEIs) face complex demands for strategic adaptation. However, the integration of Balanced Scorecard (BSC) perspectives-particularly learning, growth, stakeholder engagement, and sustainability-remains limited in Indonesian HEIs, creating a need for a multidimensional performance framework. This study analyzes BSC implementation in universities through a comparative analysis of Indonesian and international cases, identifying success factors and challenges. The method used is a Systematic Literature Review (SLR) with thematic analysis of 22 articles from four major academic databases. Indonesian HEIs tend to focus on financial and internal process indicators. In contrast, international institutions are broader in integrating stakeholder and sustainability dimensions. Key challenges in Indonesia include limited IT infrastructure, academic cultural resistance, and inadequate contextualization of indicators. Success depends on strategic leadership, stakeholder engagement, digital infrastructure, and continuous adaptation. This study proposes a holistic, context-sensitive, and measurable BSC adaptation model for Indonesian higher education. This research offers practical guidance and a theoretical framework for performance management in HEIs, particularly in developing countries.

Keywords
Balanced Scorecard; Higher education; Performance management; Stakeholder engagement; Strategic leadership; Sustainability integration.

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1. INTRODUCTION

The global higher education landscape is undergoing rapid transformation, driven by digital disruption, shifting international policies, and evolving labor market demands. In response to these changes, universities worldwide are adopting comprehensive and adaptive strategic management approaches. The increasing complexity and external pressures on higher education institutions (HEIs) indicate that fragmented traditional performance metrics are no longer adequate. This creates a fundamental need for an integrated framework that can capture multidimensional performance beyond mere academic outcomes.

Since its introduction by Kaplan and Norton in 1996, the Balanced Scorecard (BSC) has gained a reputation as an essential tool for translating institutional vision and mission into measurable performance indicators, organized into four main perspectives: financial, customer, internal processes, and learning and growth. Although the BSC has proven successful in the business sector, its application in higher education institutions requires specific adaptations. These adaptations are necessary to accommodate academic autonomy, the tri-dharma mission of universities (education, research, and community service), and the diverse needs of stakeholders. The need to tailor the BSC for HEIs, despite its origins in the business world, highlights a fundamental tension between managerial efficiency models and unique, often less measurable, academic values, such as intellectual freedom or the tri-dharma mission. This tension often becomes a determining factor in implementation challenges.

The BSC concept enables alignment between academic goals and managerial performance. For example, a university in Jakarta uses the BSC to balance international publication targets with efficient research fund management, while an institution in Yogyakarta utilizes it to evaluate student service quality and lecturer competency development. Globally, existing studies show that BSC implementation enhances strategic transparency, improves coordination between academic and administrative units, and strengthens public accountability. However, cross-country comparisons also highlight risks such as oversimplification when business metrics are used without adjustment for the academic context, potentially reducing research quality and learning depth.

In Indonesia, additional complexities arise from institutional disparities, especially between state universities in urban areas and private institutions in remote regions. World Bank data (2021) shows that access to higher education in Jakarta exceeds 35% of the college-age population, while in provinces like Papua and East Nusa Tenggara, the figure is still below 15%. National reform programs, such as the Merdeka Belajar-Kampus Merdeka initiative and the implementation of Key Performance Indicators (KPIs), aim to improve curriculum innovation and graduate employability. Nevertheless, these efforts often face challenges of bureaucratic accreditation processes, limited IT infrastructure, and organizational resistance.

Empirical studies from Indonesia report that BSC implementation has improved governance and strategic communication. However, significant challenges remain, especially in executing the learning and growth perspective. Andriani et al. (2023) observed a dominance of financial and customer indicators, while Susanti (2024) emphasized the importance of collaborative engagement among academic staff to build ownership and sustainability of the BSC. Rahmawati et al. (2022) identified limited managerial capacity among faculty leaders and administrative staff as a critical barrier. The dominance of financial and customer indicators in BSC implementation in Indonesian HEIs, despite national reform programs aimed at broader innovation, indicates a gap between policy aspirations and on-the-ground practices. This implies that top-down policies alone are insufficient without addressing underlying cultural, infrastructural, and capacity issues.

  ISSN: 2721-723X, E-ISSN: 2722-7278

There is a noticeable gap in the literature regarding multiple case studies of BSC in Indonesian higher education. Most current research is limited to single-case analyses and lacks comparative insights into factors contributing to successful implementation. Furthermore, external influences such as government policies, industry collaboration, and regional socio-cultural dynamics are still underexplored.

This study seeks to address these gaps by adopting a multiple-case study design involving six universities, encompassing both state and private institutions in urban and rural areas. These institutions were purposively selected based on their status, geographical diversity, and level of BSC adoption. This study aims to: (1) identify internal factors such as strategic leadership, organizational culture, and IT capabilities that influence BSC effectiveness; (2) examine external factors including public policies, industry collaboration, and regional characteristics that support or hinder implementation; and (3) propose a holistic, context-sensitive, and measurable BSC adaptation model.

2. LITERATURE REVIEW

2.1 Balanced Scorecard in Higher Education: Conceptual Framework and Adaptation

The Balanced Scorecard (BSC) is a strategic management approach designed to systematically bridge an organization's vision and mission with measurable performance indicators. This framework, developed by Kaplan and Norton (1996), is structured around four main perspectives: financial, customer, internal processes, and learning and growth. Since the publication of the Harvard Business Review (HBR) article in 1992 (Kaplan & Norton, 1992), the Balanced Scorecard was quickly adopted by various companies, providing deeper insights into its potential and strengths. Over the next 15 years, as it was adopted by thousands of private, public, and non-profit organizations worldwide, the concept expanded into a management tool for describing, communicating, and implementing strategy.

In the context of higher education, the application of these four perspectives must be adapted to reflect the unique complexities and characteristics of academic institutions. The BSC can help universities and other higher education institutions leverage the intangible assets they need for future growth, complementing traditional financial measurements (Kellen & Wolf, 2003).

The customer perspective in the higher education BSC encompasses various stakeholder groups beyond students, such as faculty members, administrative staff, alumni, industry partners, and the broader community. This broader scope aims to ensure that institutional performance evaluation captures the expectations and perceptions of all parties involved in the higher education ecosystem. In the customer perspective, metrics related to students' positions in national rankings and student performance in professional activities during and after graduation should be adopted (Kellen & Wolf, 2003). Meanwhile, the financial perspective focuses on how institutions efficiently manage resources and ensure funding sustainability, especially in supporting research activities, scholarships, infrastructure development, and expansion of educational access. Budget transparency and diversification of funding sources are crucial elements in this area.

  ISSN: 2721-723X, E-ISSN: 2722-7278

The internal process perspective examines how institutions manage the implementation of the tri-dharma of higher education: education, research, and community service. It also includes administrative aspects such as operational efficiency and compliance with quality standards. Well-designed internal processes foster continuity between institutional strategy and daily activities carried out by the academic community. The learning and growth perspective emphasizes the development of individual and institutional capacity, including faculty and staff development, innovation in teaching methods, and the integration of digital technology to support adaptive learning. This dimension is crucial to ensure institutions are prepared to respond to global changes.

Recent literature also highlights the importance of integrating a sustainability perspective into BSC implementation in higher education. The need to create a Sustainability Balanced Scorecard (SBSC) emerged as a consequence of the orientation towards corporate social responsibility (CSR) (Chalmeta & Palomero, 2011; Figge et al., 2002). SBSC integrates sustainability accounting and reporting with strategic management, enhancing comprehensive performance evaluation (Hansen & Schaltegger, 2016). The concept of sustainable development is characterized by the '3Ps' - People, Planet, and Profit/Prosperity, which highlight the importance of balancing social, natural, and financial resources (Chalmeta & Palomero, 2011; Figge et al., 2002). Various approaches have been developed to update the original BSC to fit sustainability requirements, either by modifying the original four dimensions or adding additional dimensions related to sustainability issues (Chalmeta & Palomero, 2011; Figge et al., 2002). Thus, the BSC becomes a comprehensive and adaptive framework for guiding institutions towards sustainable excellence. The evolution of the BSC in higher education from four to five (or more) perspectives, particularly the addition of 'sustainability/stakeholder', signifies a growing recognition that HEIs are not just educational "factories," but complex socio-economic actors with broader societal responsibilities. This shift indicates a movement from purely internal efficiency towards external impact and long-term resilience.

2.2 Success Factors for BSC Implementation in Higher Education

Leadership and strategic commitment from top management are fundamental to the successful implementation of the BSC. Visionary leaders not only define the strategic direction of the institution but also ensure that the strategy is well understood and implemented across all academic and administrative units. Active leadership involvement in setting performance indicators, monitoring implementation, and facilitating dialogue between units is crucial for sustaining the performance management process. Without consistent support from top leadership, the BSC risks becoming a formality disconnected from institutional practice. The application of BSC in universities shows that this management tool leads to successful strategy implementation, facilitates coordination between strategic and operational realms, efficiently measures organizational performance, and lays the groundwork for measuring the achievement of university goals based on established indicators (Hladchenko, 2015).

  ISSN: 2721-723X, E-ISSN: 2722-7278

Stakeholder participation indicates how inclusive the BSC process is in reflecting the needs and aspirations of the entire campus community. Success depends on the involvement of faculty, administrative staff, students, alumni, and external partners throughout the planning, implementation, and evaluation stages. A participatory approach fosters a sense of ownership over shared performance targets. Constructive feedback from stakeholders also helps institutions develop indicators that truly reflect the quality and relevance of education.

Information technology infrastructure readiness is the backbone of a data-driven BSC system. Effective implementation requires integrated systems capable of accurately processing and displaying performance metrics. These systems must include academic, financial, and administrative data, as well as strategic indicators. The Balanced Scorecard strategy map is a useful tool for clarifying strategy, identifying key internal processes that drive strategic success, and aligning investments to improve university performance (Kellen & Wolf, 2003). Without reliable IT systems, reporting becomes fragmented, making evidence-based decision-making difficult. Investment in infrastructure and user training thus becomes a top priority in supporting BSC operations.

Alignment of performance indicators with institutional characteristics determines the effectiveness of BSC implementation. Generic indicators, especially when adapted directly from business models, risk failing to capture the complexities of higher education. Institutions must design context-specific metrics that reflect differences between public and private institutions, institutional size, geographical location, academic focus, and program type. Complementary efforts such as HR training, fostering an adaptive organizational culture, and providing adequate resources further strengthen BSC effectiveness. The emphasis on "alignment of performance indicators with institutional characteristics" and "stakeholder participation" suggests that BSC implementation is not a uniform technical exercise, but a socio-technical process requiring deep contextual understanding and collective ownership. Failure in these areas can lead to superficial adoption without tangible strategic impact.

2.3 Challenges of BSC Implementation in Higher Education

Organizational cultural resistance poses a significant challenge to BSC adoption, especially given academia's strong emphasis on intellectual freedom and individual autonomy. The structured and systematic managerial approach introduced through the BSC often creates tension or opposition. Without effective communication strategies and the involvement of key actors such as senior lecturers and deans, acceptance of the new system is low, hindering adoption and reducing BSC effectiveness.

In addition to cultural resistance, technical complexity and administrative burden present significant barriers. Implementing the BSC involves several stages, from strategy mapping and indicator selection to regular performance evaluation. These processes require significant time and energy from academic and administrative staff. One of the main reasons why companies overemphasize financial metrics at the expense of other important operational variables is the simple fact that systems for collecting and reporting financial measures already exist (Niven, 2008; Simmons, 2000). If metric data

  ISSN: 2721-723X, E-ISSN: 2722-7278

collection consumes too much time and energy, it will not be captured (Niven, 2008; Simmons, 2000). Without additional resources, increased workload can lead to confusion in priorities and burnout, reducing the BSC to a symbolic document with limited practical value.

Limitations in human resources and undeveloped monitoring systems also hinder progress. Not all institutions have staff skilled in performance data analysis and strategic management. Another challenge includes collecting desired information and systematizing its production and analysis (Hoque, 2014). Lack of training and structured monitoring results in performance data often being unused or misinterpreted, limiting the BSC's contribution to performance improvement.

Finally, the need for local adaptation of BSC models developed abroad is a serious concern. BSC frameworks designed for global corporate environments cannot be directly applied in Indonesian higher education without considering national regulations, educational bureaucracy, and societal expectations. The value of the Balanced Scorecard system rests on the premise that once performance problems are identified, there are efficient and effective methods to diagnose and address their root causes (Niven, 2008; Simmons, 2000). If an organization does not have standardized methodologies and tools to address process problems, the effort required to derive a problem-solving approach for each new performance gap can eventually undermine the performance improvement program (Niven, 2008; Simmons, 2000). Inadequate methodological adaptation can lead to misalignment between indicators and institutional realities, ultimately resulting in implementation failure. The recurring challenges, particularly cultural resistance and HR and IT limitations, suggest that BSC implementation in HEIs, especially in contexts like Indonesia, faces a "capability-context gap." Institutions often lack the human capital, technological infrastructure, and adaptive organizational culture to fully embrace and leverage the BSC's potential, leading to symbolic rather than substantive adoption.

3. RESEARCH METHOD

This study adopted a Systematic Literature Review (SLR) approach to identify, evaluate, and synthesize empirical evidence on the application of the Balanced Scorecard (BSC) in performance management within higher education institutions, both in Indonesia and internationally. The review was guided by four research questions: (1) How are BSC perspectives (financial, customer, internal process, learning and growth, and sustainability/stakeholder) distributed across studies conducted in Indonesia versus those conducted internationally? (2) What are the main challenges faced by higher education institutions in implementing the BSC in each context? (3) What success indicators are most frequently used, and what performance outcomes are reported? (4) What policy recommendations and practical implications arise from cross-country comparisons?

A comprehensive literature search was carried out across four major academic databases: Scopus, Web of Science, Google Scholar, and the Directory of Open Access Journals (DOAJ). Keywords in both English and Indonesian were used, including “Balanced Scorecard” OR “BSC,” “performance management” OR “manajemen kinerja,” “higher education” OR “perguruan tinggi” OR “university,”

  | ISSN: 2721-723X, E-ISSN: 2722-7278

"implementation" OR "implementasi," "Indonesia," and "international," using Boolean operators (AND/OR) to structure the search strategy. From an initial pool of 1,086 records, duplicates were removed and titles and abstracts were screened, resulting in 125 full-text articles for further evaluation. Articles were included if they were open-access journal publications from 2018 to 2025, specifically focusing on BSC implementation in higher education. Studies were excluded if they were non-journal publications, lacked full-text access, were outside the time frame or language criteria, or did not relate to performance management. In total, 22 articles met all criteria, including six from Indonesian institutions, which were purposefully included to allow for contextual comparison with international studies.

Table 1. Characteristics of the Included Studies on BSC Implementation in Higher Education (2018–2025)

No	Author (Year)	Focus / Context	Key Findings	Challenges	Recommendations
1	Silva et al. (2025)	BSC in Amazonas Univ.	HR training improved stakeholder satisfaction	Limited data scope	Broaden data; enhance HR training
2	El Filali & Bachisse (2019)	Morocco reforms & BSC	Balanced indicators; high satisfaction	Small sample; data reliability	Standardize BSC; enlarge samples
3	Sharaf-Addin & Fazel (2021)	Bisha Univ. BSC model	4-perspective BSC, 51 KPIs	No external surveys	Scale to other univ.; add surveys
4	Yusof et al. (2020)	Malaysia HEIs	BSC aligns vision & operations	No cross-sector analysis	Compare across industries
5	Badawy et al. (2024)	Egypt framework	Gaps & weak infra identified	Infra not optimal	Improve infra; localize BSC
6	Al-Dahiyat (2020)	Mutah Univ.	42 indicators, 9 dimensions	Lack of integration	Automate reporting
7	Nguyen et al. (2025)	Vietnam, sustainability	Sustainability improve student satisfaction	Integration issues	Expand adoption; train staff
8	Bekele & Batra (2018)	Ethiopia HE	Finance & process effects customer	Self-report bias	Use longitudinal data
9	Alani et al. (2018)	Sohar Univ.	Strong strategy–BSC link	Single case	Apply to other campuses
10	Engin (2022)	Adiyaman Univ.	BSC boosts transparency	Staff training lacking	Internal dialogue & training
11	Oliveira et al. (2021)	Portugal	BSC aids strategic monitoring	Short-term focus	Benchmark for EU HEIs
12	Kiriri (2022)	Kenya	Sample BSC design	Accountability pressure	Adopt for transparency
13	Gathani & Khandhadia (2024)	PROMISE V2	Data-driven KPIs	Need real-time data	Standardize & expand system
14	Camilleri (2021)	HEI managerialism	BSC covers inclusivity & research	Cultural resistance	Integrate KPIs; training

  | ISSN: 2721-723X, E-ISSN: 2722-7278

No	Author (Year)	Focus / Context	Key Findings	Challenges	Recommendations
15	Al Kaabi & Jowmer (2018)	Iraq, sustainability	BSC identifies strengths	KPI adjustment needed	Train on sustainability
16	Lassoued (2018)	UAE ECB	SWOT–BSC model	Single case	Broaden to other HEIs
17	Riatmaja et al. (2025)	Indonesia	Transparency & efficiency improve	Resource limits	Strengthen IT & HR
18	Abadi et al. (2024)	UIN Pekalongan	Revenue improve; efficiency good	Limited income streams	Diversify income; digitalize
19	Ilahiyah & Palupi (2022)	IT–BSC, UNISLA	Clear IT targets set	Limited scope	Quantitative expansion
20	Adisel (2019)	Indonesia	Good finance & customer; innovation lagging	Process innovation low	Improve HR & innovation
21	Sinen et al. (2024)	Univ. X	Strong performance across BSC	Limited staff focus	Deepen efficiency analysis
22	Wijaya et al. (2025)	Galuh Univ.	BSC boosts lecturer & outcomes	Single case; short-term	Long-term impact studies

Source: Compiled by the author based on systematic extraction from selected open-access journal articles published between 2018-2025.

Data were extracted using a standardized form that captured bibliographic details, study background, the BSC perspectives applied, identified success indicators, implementation challenges, and recommendations. Each article was then coded thematically and assigned a relative emphasis score ranging from 1 to 5. The thematic findings were presented visually in a comparative bar chart.

  | ISSN: 2721-723X, E-ISSN: 2722-7278

Klabat Journal of Management
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Page: 1-22

ISSN: 2721-690X
P-ISSN: 2722-726X
DOI: https://doi.org/10.60090/kjm.v4i

Figure 1:

Key Themes in BSC Implementation Literature (Emphasis Scale 1–5)

Source: Author's thematic analysis based on extracted data.

The analysis followed three main stages: (1) descriptive analysis, which mapped the distribution of studies by country and year of publication; (2) thematic analysis, which identified key themes, common challenges, and success factors; and (3) comparative analysis, which highlighted similarities and differences between studies conducted in Indonesia and those conducted internationally to comprehensively answer the research questions. Finally, the methodological quality of each included article was assessed, and limitations such as potential publication bias and access restrictions were discussed transparently to enhance the credibility and robustness of the review.

4. RESULTS AND DISCUSSIONS

4.1 Discussion of RQ1: Distribution of BSC Perspective Application

The Balanced Scorecard (BSC) framework, originally introduced by Kaplan and Norton (1996), consists of four integrated perspectives: financial, customer, internal processes, and learning & growth. These perspectives are designed to translate an organization's vision and mission into an actionable strategy map. In the context of higher education, these perspectives are adapted to reflect financial sustainability (e.g., funding for research and scholarships), stakeholder satisfaction (students, faculty, alumni, industry partners), effectiveness of academic operations (such as teaching, research, and

community service), and academic capacity development through innovation and technology. In recent years, a growing body of literature has also advocated for the inclusion of a fifth perspective, namely sustainability or stakeholders, to capture broader institutional, social, environmental, and long-term objectives.

As visualized in Figure 2, studies in Indonesia tend to emphasize the financial and internal process perspectives most prominently, consistent with conventional management focus areas in higher education institutions (HEIs). These patterns are reflected in studies such as Riatmaja et al. (2025), who reported the dominant use of financial and internal process indicators in evaluating institutional performance. Similarly, Silva et al. (2025) in Brazil emphasized internal process and customer perspectives, particularly through initiatives to enhance human resource capacity and transparency. However, their customer orientation encompasses external stakeholders, unlike many Indonesian studies that tend to focus primarily on student satisfaction.

The customer perspective receives moderate emphasis in Indonesian studies (score 4) but differs from international practices. For example, research in the UK (Camilleri, 2021) and Portugal (Oliveira et al., 2021) defined customer satisfaction more broadly, encompassing elements such as social responsibility and community engagement, dimensions generally absent in Indonesian applications.

The learning & growth and sustainability/stakeholder perspectives remain significantly underrepresented in Indonesian research. While studies in Vietnam (Nguyen et al., 2025) and Egypt (Badawy et al., 2024) have incorporated sustainability aspects to improve institutional infrastructure and student satisfaction, such integration in Indonesia is often conceptual and rarely empirically tested. Although Badawy et al. heavily emphasized finance and operations, they introduced a layered model addressing infrastructure readiness, an approach not widely adopted in Indonesia. Other countries, such as Saudi Arabia (Sharaf-Addin & Fazel, 2021), Morocco (El Filali & Bachisse, 2019), and Singapore (Gathani & Khandhadia, 2024), show varying degrees of integration between conventional and emerging BSC dimensions. For instance, Singapore has begun implementing real-time KPI systems that link innovation and stakeholder metrics. In contrast, Indonesian studies continue to rely on traditional BSC frameworks without substantial consideration of external stakeholder engagement or adaptive performance systems.

  | ISSN: 2721-723X, E-ISSN: 2722-7278

Figure 2.

Distribution of BSC Perspective Application in Indonesian vs. International Studies

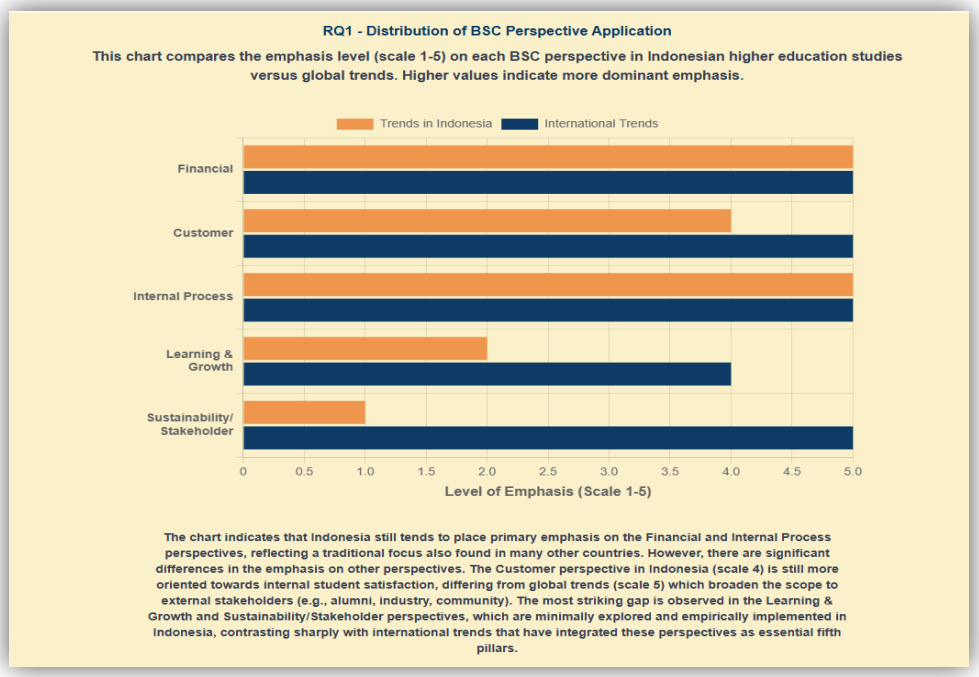

Figure Source: Author's analysis based on literature review findings (2025)

Overall, while international trends move towards a more balanced distribution of the four original BSC perspectives, often with the addition of a fifth sustainability/stakeholder dimension, Indonesian applications remain concentrated on financial and internal process perspectives. This limited scope may hinder Indonesian HEIs from aligning with global standards for strategic and sustainable performance management. The underutilization of learning & growth and stakeholder perspectives highlights a critical gap and opportunity for future empirical research and institutional policy innovation in the Indonesian higher education landscape. This suggests a strategic myopia. This narrow focus risks hindering long-term adaptation, innovation, and social relevance, potentially creating a competitive disadvantage in the global higher education landscape.

4.2 Discussion of RQ2: Key Challenges in BSC Implementation

The implementation of the Balanced Scorecard (BSC) in higher education institutions faces various challenges in both Indonesian and international contexts. Based on systematic findings and visualization in Figure 3, five main categories of challenges are frequently reported in studies: resistance to organizational cultural change, human resource capacity limitations, IT and data infrastructure issues, lack of indicator contextualization, and weak sustainability integration.

  | ISSN: 2721-723X, E-ISSN: 2722-7278

Figure 3. Key Challenges in BSC Implementation in Indonesian and International Higher Education Institutions

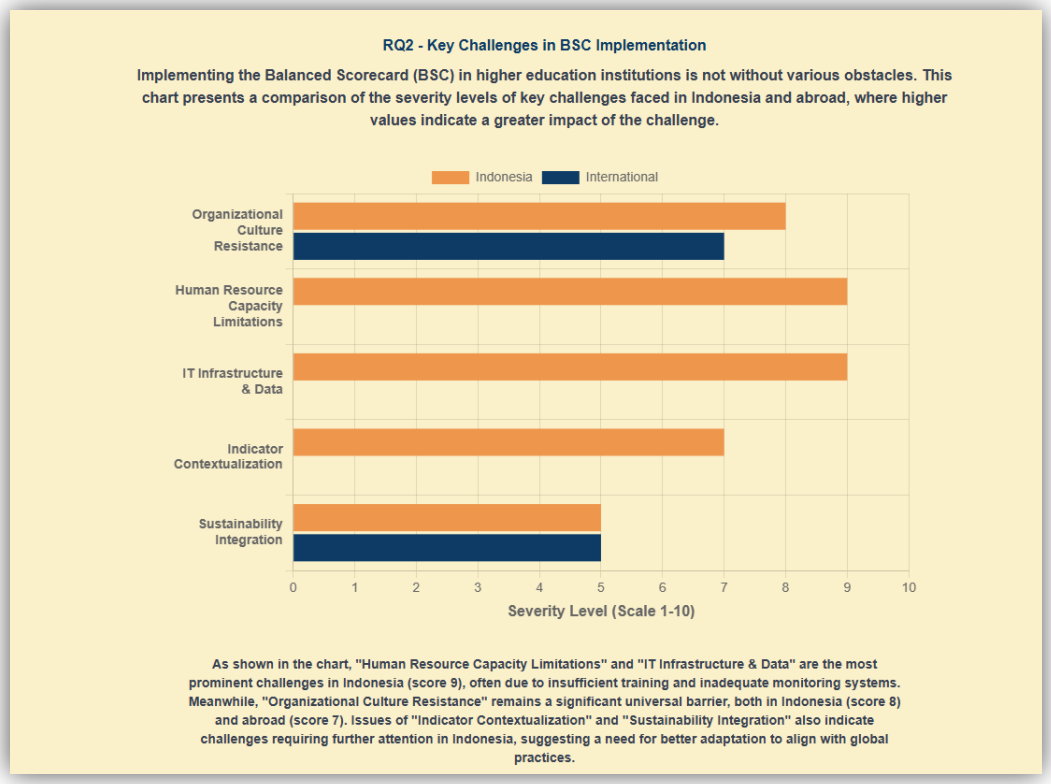

Figure Source: Author's analysis based on literature findings (2025)

The figure shows that the most prominent challenges in Indonesia are human resource capacity limitations and IT infrastructure, each receiving a high severity level. Studies by Riatmaja et al. (2025) and Adisel (2019) reported that many faculties still lack competent strategic managers in performance data analysis, along with limited monitoring software and database integration. This is exacerbated by limited access to continuous staff training, as also noted by Silva et al. (2025) in Brazil.

Resistance to organizational cultural change remains a universal challenge, observed in both Indonesia (score 9) and internationally (score 7). In Indonesia, this resistance stems from the tension between an academic culture that values individual autonomy and the structured and systematic nature of the BSC approach (Sukarno & Pratiwi, 2023). Both Camilleri (2021) in the UK and Susanti (2024) in Indonesia emphasized the importance of effective communication and engagement strategies to mitigate this resistance.

Indicator contextualization issues are another major challenge in Indonesia, as most BSC indicators have not been adjusted to reflect the core principles of the higher education tri-dharma. Rahmawati et al. (2022) and Ilahiyah and Palupi (2022) indicated that many institutions still rely on generic frameworks without incorporating the unique characteristics of the local academic environment.

Sustainability integration, proposed as the fifth BSC perspective, is also still underdeveloped in Indonesia. Studies by Wijaya et al. (2025) and Sinen et al. (2024) show that many institutions have not

  | ISSN: 2721-723X, E-ISSN: 2722-7278

established structured environmental and social KPIs within their BSC frameworks. In contrast, countries like Vietnam (Nguyen et al., 2025) and Egypt (Badawy et al., 2024) have begun developing models that incorporate sustainability as a key component of their performance management systems.

Overall, the comparison between Indonesia and international cases shows that while some challenges, such as cultural resistance and infrastructure limitations, are global, Indonesia faces distinct issues that require targeted strategies. These include underdeveloped sustainability integration, inadequate adaptation of performance indicators, and limited institutional capacity to build robust monitoring and evaluation systems aligned with international strategic management standards. The high severity of IT infrastructure and HR capacity limitations in Indonesia, coupled with cultural resistance and poor contextualization, creates a "vicious cycle of suboptimal performance." Without adequate infrastructure and skilled personnel, BSC data collection and analysis become fragmented, reinforcing cultural resistance to data-driven decision-making, and perpetuating the use of generic, uncontextualized indicators. This suggests that addressing one challenge in isolation is unlikely to yield significant improvements.

4.3 Discussion of RQ3: Measuring BSC Implementation Success in Higher Education Institutions

According to Kaplan and Norton's (1996) Balanced Scorecard, the success of its implementation in higher education institutions is assessed through four main perspectives: financial, customer, internal processes, and learning and growth. The financial perspective reflects efficiency and funding sustainability. The customer perspective captures student and stakeholder satisfaction. The internal process perspective focuses on the effectiveness of core functions such as teaching, research, and community service. The learning and growth perspective emphasizes the development of academic staff capacity and institutional innovation. Analysis of international studies, as visualized in Figure 4, shows significant variation in how success indicators are applied and what results are achieved. These findings are compared with Indonesian practices to provide contextual insights.

  | ISSN: 2721-723X, E-ISSN: 2722-7278

Klabat Journal of Management
Volume 7 Number 1 (2026)
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Page: 1-22

ISSN: 2721-690X
P-ISSN: 2722-726X
DOI: https://doi.org/10.60090/kjm.v4i

Figure 4. Key Indicators and Performance Results of BSC Implementation

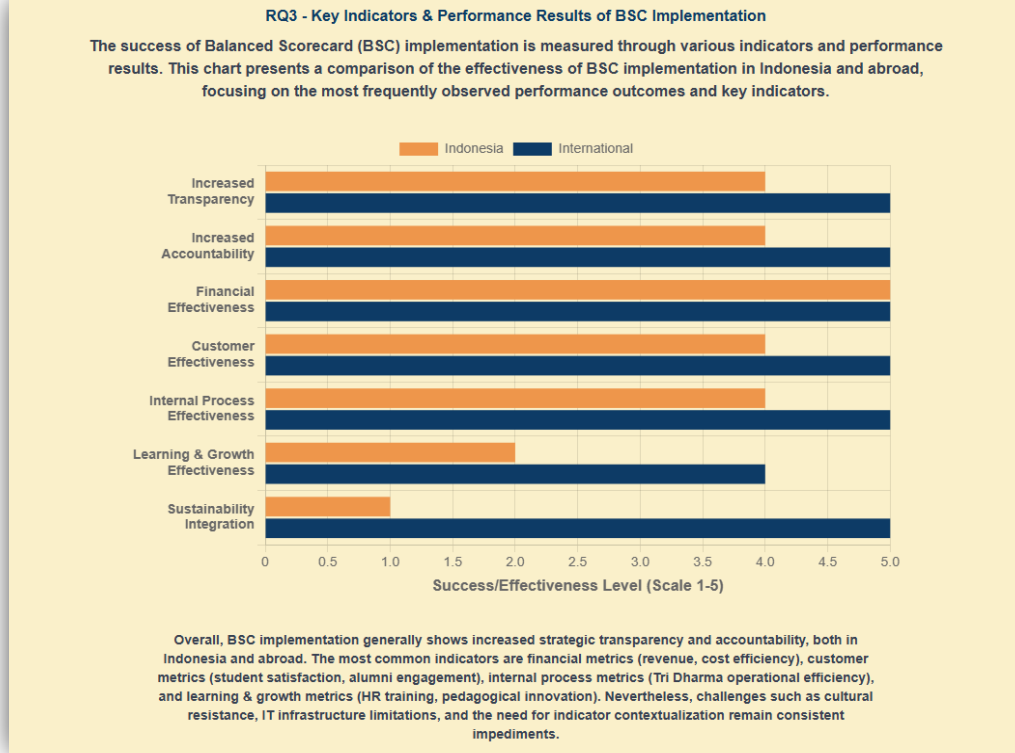


Figure Source: Author's analysis based on extracted journal findings (2025)

In Brazil, Silva et al. (2025) focused on improving academic operations using indicators such as staff training and stakeholder satisfaction. Although increased student satisfaction and administrative efficiency were reported, the study noted limitations in primary data collection. Similarly, Riatmaja et al. (2025) in Indonesia observed increased transparency and efficiency but faced challenges in data integration and cultural resistance.

At Mohammed V University Rabat, Morocco, El Filali and Bachisse (2019) applied all four BSC perspectives in a balanced manner, using indicators such as student satisfaction and research funding ratios. In Indonesia, Abadi et al. (2024) at UIN KH Abdurrahman Wahid also reported increased revenue and internal efficiency but highlighted the need for digitalization of management processes to improve performance reporting.

Sharaf-Addin and Fazel (2021) at Bisha University, Saudi Arabia, developed a strategic map with 44 initiatives and 51 KPIs, including financial indicators, stakeholder satisfaction, and learning outcomes. Although strong alignment between KPIs and strategic action plans was found, the study emphasized the need for external survey validation. Meanwhile, Ilahiyah and Palupi (2022) at UNISLA focused on IT-related strategic objectives, such as achieving at least 10% cost savings and approximately 25% user satisfaction, although limitations were noted due to the qualitative research design.

In Malaysia, Yusof et al. (2020) found that BSC indicators helped simplify management and align institutional vision with daily operations, emphasizing customer satisfaction and academic cost-return ratios. In contrast, Adisel (2019) in Indonesia reported adequate attention to financial and customer perspectives but noted that innovation in internal processes required further development.

At Tanta University, Egypt, Badawy et al. (2024) introduced a layered BSC framework to identify strategic gaps in infrastructure and operations. Indicators such as infrastructure readiness and research program completion were highlighted, although overall performance remained suboptimal. Adhan and Sembiring (2024) in Indonesia observed strong performance across all four perspectives but called for deeper analysis of factors contributing to fluctuations in internal efficiency.

At Mutah University in Jordan, Al-Dahiyat (2020) organized 42 indicators into nine dimensions, including research outcomes and alumni satisfaction, achieving higher accountability levels despite the need for automated reporting. Similarly, Wijaya et al. (2025) at Galuh University in Indonesia found BSC effective in improving faculty performance and educational quality, although further long-term evaluation was suggested.

Nguyen et al. (2025) in Vietnam expanded the BSC by adding a sustainability perspective, showing positive contributions of indicators such as campus carbon footprint and community engagement programs to student satisfaction. Similarly, Bekele and Batra (2018) in Ethiopia confirmed the influence of financial and internal process indicators on customer-related outcomes, although they noted concerns regarding the reliability of self-reported data.

In Portugal, Oliveira et al. (2021) reported that BSC was useful for tracking medium- and long-term goals, although short-term goals remained dominant, and the learning and growth perspective received less emphasis. In the UK, Camilleri (2021) highlighted the usefulness of BSC for assessing inclusivity and stakeholder engagement but stressed the importance of skilled evaluators and consistent feedback to avoid superficial use.

In the Middle East, Alani et al. (2018) in Oman and Lassoued (2018) in the UAE found that BSC strategic maps aligned with local KPIs such as student retention and industry collaboration. However, both studies indicated a lack of multi-case analysis and limited external validation.

Overall, the most frequently used indicators across the literature include financial metrics (e.g., revenue, cost efficiency), customer-related indicators (e.g., student satisfaction, alumni engagement), internal process indicators (e.g., operational effectiveness in teaching and research), and learning and growth indicators (e.g., staff training, innovation). While implementation often leads to increased transparency and accountability, persistent barriers including cultural resistance, inadequate IT infrastructure, and insufficient contextualization of performance indicators remain challenges shared by Indonesian and international higher education institutions. Although some Indonesian studies reported "increased transparency and efficiency," this is often linked to more easily measurable financial and internal process perspectives. The persistent calls for "digitalization" and "long-term evaluation" in

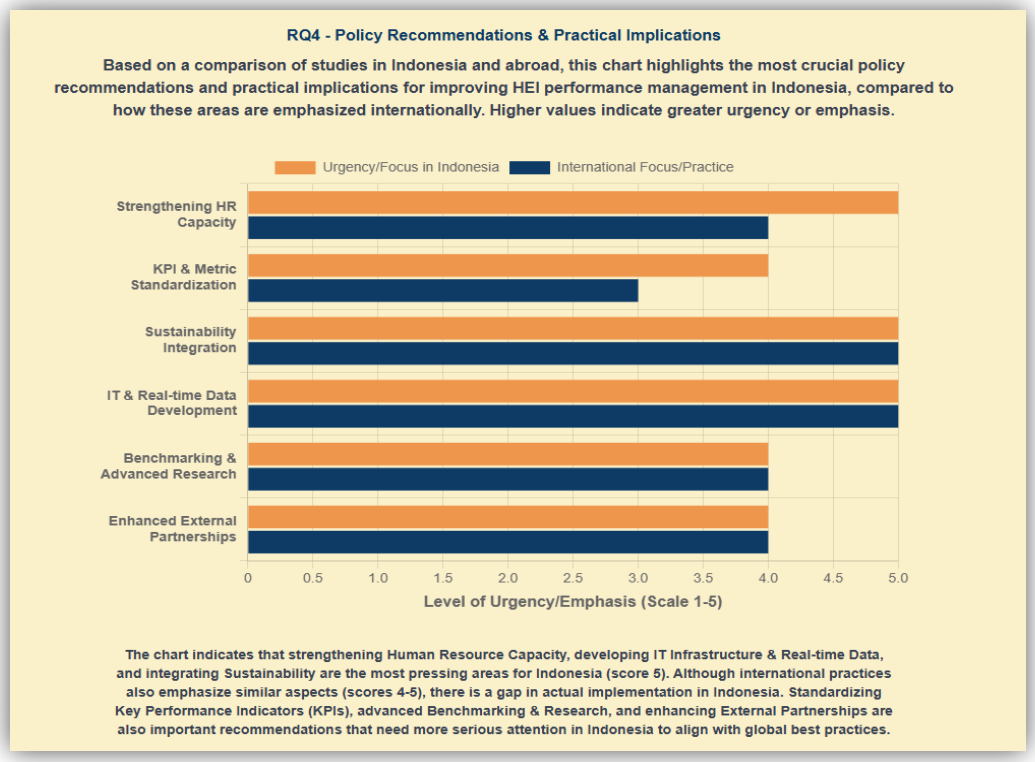
  | ISSN: 2721-723X, E-ISSN: 2722-7278

the Indonesian context suggest that current success metrics may be superficial or short-term, failing to capture deeper, sustainable strategic impact, especially in learning & growth and sustainability.

4. 4 Discussion of RQ4: Policy Recommendations and Practical Implications

Based on the comparative analysis of studies conducted in Indonesia and internationally, several policy recommendations and practical implications can be drawn to enhance Higher Education Institution (HEI) performance management through the Balanced Scorecard (BSC) approach. As illustrated in Figure 5, which summarizes the comparative emphasis and urgency of policy recommendations derived from Indonesian and international BSC studies, Indonesia requires stronger actions in certain areas compared to global practices.

Figure 5. Policy Recommendations and Emphasis in BSC Implementation



Source: Author's synthesis based on cross-country BSC literature review (2025)

The first key recommendation is strengthening human resource capacity. Both Indonesian and international studies (e.g., Silva et al., 2025; Riatmaja et al., 2025) emphasize the importance of continuous training and upskilling programs to build institutional capabilities. Cultural resistance and a lack of skilled evaluators remain significant barriers. Therefore, HEIs in Indonesia should implement structured capacity-building initiatives, provide regular BSC training, and adopt internal change management strategies.

Second, standardization of Key Performance Indicators (KPIs) and metrics is crucial. Unlike the more standardized applications found internationally (El Filali & Bachisse, 2019), Indonesian

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institutions often use inconsistent or overly generic metrics. A flexible yet standardized national framework, adaptable to the unique characteristics of each institution, is needed. The integration of KPI roadmaps, similar to the strategy map model proposed by Sharaf-Addin and Fazel (2021), is highly recommended.

Third, the integration of sustainability metrics is still underdeveloped within the Indonesian BSC framework. International examples, such as from Vietnam (Nguyen et al., 2025) and Iraq (Al Kaabi & Jowmer, 2018), demonstrate how environmental and social indicators can enhance performance measurement. Indonesian HEIs should incorporate sustainability as a fifth perspective aligned with tri-dharma principles.

Fourth, the development of IT infrastructure and real-time data systems is essential. Real-time dashboards, as exemplified by Singapore (Gathani & Khandhadia, 2024), enable accurate monitoring and informed decision-making. Institutions should invest in academic ERP systems equipped with integrated BSC modules to support timely data-driven reporting.

Fifth, benchmarking practices and further research should be developed. Cross-sector comparisons (Yusof et al., 2020) and multi-case longitudinal studies (Bekele & Batra, 2018; Alani et al., 2018) allow institutions to align their performance targets with best practices. Policymakers and HEIs should encourage inter-institutional collaboration and facilitate access to comparative sectoral benchmarks.

Finally, enhanced external partnerships, particularly with stakeholders such as alumni, employers, and government agencies, can improve institutional relevance and accountability. As suggested by Lassoued (2018) and Camilleri (2021), regular stakeholder surveys and formal feedback loops should be institutionalized. These efforts also support regulatory compliance, such as with Permendikbud No. 754/P/2020.

The practical implications of these recommendations include establishing dedicated BSC units within HEIs, allocating specific budgets for IT, training, and institutional research, developing digital roadmaps for performance systems, and institutionalizing transparent annual performance reporting. The comprehensive nature of these policy recommendations, encompassing HR, IT, metrics, and partnerships, suggests that effective BSC implementation requires "system-level interventions" rather than isolated efforts. The emphasis on "standardization yet flexibility" and "external partnerships" indicates a shift towards a more connected and accountable higher education ecosystem, moving beyond internal institutional silos.

4.5. Proposed Context-Sensitive BSC Adaptation Model

This section conceptualizes and outlines a holistic, context-sensitive, and measurable BSC adaptation model, integrating findings from the comparative analysis and addressing the stated study objectives. This model builds upon identified gaps (limited perspectives, lack of contextualization,

  ISSN: 2721-723X, E-ISSN: 2722-7278

IT/HR limitations in Indonesia) and international best practices (broader stakeholder engagement, sustainability integration, real-time data systems). The development of a "context-sensitive adaptation model" directly addresses a core research gap by moving from problem identification to solution proposal. This proactive approach signifies a higher level of academic contribution, translating analytical findings into a practical framework. The emphasis on "scalability" and "adaptability" within the model itself implies a recognition of the inherent diversity within the Indonesian higher education landscape, preventing a new "one-size-fits-all" trap.

The proposed Balanced Scorecard (BSC) adaptation model is designed to be holistic, context-sensitive, and measurable for higher education institutions (HEIs) in Indonesia. This model retains the four core BSC perspectives (financial, customer, internal processes, and learning and growth) but explicitly tailors their application to accommodate the tri-dharma mission of Indonesian universities, ensuring a focus not only on efficiency but also on the core quality of education, research, and community service. Additionally, the model integrates a fifth perspective, sustainability and stakeholders, with specific Key Performance Indicators (KPIs) for social impact, environmental management, and ethical governance. This aims to move HEIs beyond conceptual discussions to empirical measurement, with examples of KPIs such as campus carbon footprint and community engagement programs. The model also includes a contextualization framework to adjust indicators to the unique characteristics of each institution (e.g., type, size, location, academic focus), ensuring relevance to local realities and national policies. To support the implementation of this model, the need for supporting infrastructure is outlined, both digital (academic ERP systems, real-time dashboards) and human resources (training in data analysis, strategic management, change management). Stakeholder engagement mechanisms are also described, involving formal processes to involve various stakeholders (students, faculty, alumni, industry, government) in the design, implementation, and evaluation of the BSC. Finally, the model emphasizes the iterative nature of the BSC through a continuous improvement loop, incorporating regular review, feedback, and adaptation cycles to ensure long-term relevance and effectiveness. This proposed model is designed to be scalable across different types of HEIs in Indonesia, while remaining flexible enough for local adaptation, acknowledging the inherent diversity in the Indonesian higher education landscape.

5. CONCLUSIONS

Based on the systematic review, the use of the Balanced Scorecard (BSC) in Indonesian higher education institutions is predominantly limited to financial and internal process perspectives. Customer (external stakeholders beyond students), learning and growth perspectives, and sustainability considerations receive minimal empirical investigation. The consistent pattern of "limited perspectives" and "methodological weaknesses" in Indonesian studies, despite reported "increased transparency and efficiency," suggests that the current state of BSC implementation is largely rudimentary. The benefits

  | ISSN: 2721-723X, E-ISSN: 2722-7278

achieved are likely incremental rather than transformative, indicating significant untapped strategic potential if underlying issues are addressed.

Key challenges include limitations in human resource expertise in performance data analysis, IT infrastructure that is not fully integrated in real-time, and resistance within the academic culture to structured management approaches. Although some studies reported increased transparency, operational efficiency, and student satisfaction, research designs often lacked multiple case studies, longitudinal analysis, and validation of context-specific indicators aligned with the university's tri-dharma mission.

These observations highlight the need for a more flexible BSC framework that meaningfully engages external stakeholders and embeds sustainability metrics to meet global and local requirements.

For future research, it is recommended to adopt multi-case quantitative designs to allow for statistical validation of the relationships between BSC indicators and institutional performance over time. This approach will address the limitations of single-case studies and qualitative approaches that restrict the generalization of findings. Additionally, emphasis should be placed on longitudinal studies to assess the continuous effectiveness of BSC implementation. This will provide insights into the sustainability of impact and adaptation over time. A mixed-methods approach, combining quantitative data for generalization with qualitative insights for depth and context, can also provide a more nuanced understanding of the complex dynamics of implementation.

Efforts should focus on developing and piloting BSC frameworks that explicitly integrate sustainability dimensions and digital tools, e.g., dashboards with real-time data. Future research should propose and test concrete KPIs for environmental, social, and governance (ESG) aspects in HEIs, moving beyond conceptual discussions. The indicator validation process should include input from alumni, industry partners, and government agencies. This will broaden the "customer" perspective beyond just students and internal stakeholders. Comparative studies across different regions of Indonesia can shed light on contextual factors influencing BSC adoption, which will address the need for local adaptation and understanding of institutional disparities.

Intervention-based research on organizational cultural change can be conducted to inform effective change management strategies. This targets the significant challenge of cultural resistance. Further research can also explore specific leadership behaviors and communication strategies that successfully reduce resistance and foster ownership. It is also important to deepen the exploration of external influences such as government policies, industry collaboration, and regional socio-cultural dynamics on BSC implementation (Sukarno & Pratiwi, 2023). Additionally, investigating the impact of various stakeholder engagement models on BSC effectiveness and perceived legitimacy is highly relevant. The comprehensive and multi-faceted nature of these future research directions, directly derived from the limitations and gaps identified by this study, transforms the conclusion from a mere

  | ISSN: 2721-723X, E-ISSN: 2722-7278

summary into an actionable research agenda. This suggests the broader scholarly impact of the study by not only filling existing gaps but also mapping directions for future inquiry, ensuring the continuous generation of knowledge in this field.

Such comprehensive investigations are expected to support the emergence of more holistic, adaptive, and sustainable performance management practices in higher education institutions.

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