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Balanced Scorecard-based performance evaluation in higher education: A literature review on strategic vision, strategy maps, and continuous quality improvement

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Abstract---This systematic literature review looks at how Higher Education Institutions HEIs have utilized The Balanced Scorecard BSC in relation to strategy, strategy map, key performance indicators KPIs, and Continuous Quality Improvement CQI. Guided by the PRISMA[1] 2020 methodology, we searched ten academic databases for publications from 2020 until 2025, resulting in thirty papers included in this thematic analysis. The results showed that BSC was used extensively by HEIs as a tool to go further than its traditional four perspectives in order to include student and stakeholder, research, sustainability, and quality assurance perspectives as well. While strategy maps are designed to reflect the link between an organization's vision and operational activities and thus help set objectives, causal connections are hardly proven empirically. In many cases, BSC helped HEIs develop a system of internal quality assurance and CQI due to a systematic use of evidence-based practices and programme review. Cultural barriers, lack of quality data, and too many KPIs could be identified as common issues. Our study offers an integrated conceptual model consisting of six levels (strategic foundation; strategy map; BSC perspectives; KPIs system; performance evaluation; CQI loop).
Keywords---Balanced Scorecard, higher education, performance evaluation, strategy maps, strategic vision, quality assurance, continuous quality improvement.

1. Introduction

Educational organizations around the world operate amidst increasing pressures concerning accountability, resource limitation, stakeholder demands, and quality management (Fuchs et al., 2020; Jugo et al., 2025; Badawy et al., 2024). Evaluation has transformed from a marginal process in the realm of administration to a pivotal issue of strategy that determines the direction taken by institutions and their resources allocation for quality improvement (Wu et al., 2024; Talebzadeh et al., 2025). However, traditional evaluation approaches tend to be fragmented among various administrative units within the institution, divorced from its strategic thinking, and geared more toward compliance than toward capturing a multi-dimensional understanding of excellence (Sharaf-Addin and Fazel, 2021; Muda, 2025). This tendency undermines the ability of HEIs to operationalize their visions through objectives, track progress, and embed CQI at the organizational level (Badawy et al., 2024; Bell et al., 2023).

The Balanced Scorecard (BSC), which was initially proposed by Kaplan and Norton (1992, 1996) within corporate contexts, is designed to overcome some deficiencies inherent in one-dimensional performance systems. The balanced scorecard combines financial and nonfinancial metrics, connects strategic goals via logical cause-and-effect relationships in strategy maps, and allows tracking not only results but also factors that impact performance in advance. In higher education, the Balanced

[1] - Preferred Reporting Items for Systematic Reviews and Meta-Analyses

Scorecard has gained growing popularity and has been tailored to fit the vision, strategy, operations, and quality management of universities (Sauri et al., 2023; Oliveira et al., 2021). One of the critical tools of BSC is strategy maps, which visually demonstrate causal relationships between strategic goals within different perspectives, thus enabling the avoidance of the KPI management pitfall without considering its underlying causes (Kaplan and Norton, 2000, 2004).

An important yet often overlooked aspect of BSC implementation is the interrelationship between it and Internal Quality Assurance IQA and CQI processes. Through its adoption, BSC may contribute to IQA through offering structure for evidence provision for program assessment, correlating performance measures with the standards of accreditation, conducting gap analyses based on the gathered information, and creating feedback mechanisms that facilitate learning from the evaluation process (Oliveira et al., 2021; Bell et al., 2023). By establishing a direct connection between BSC-based performance evaluation and IQA, one may ensure that evaluation becomes a strategic process.

However, despite the increasing body of studies on the use of BSC in higher education institutions, there still exist many important issues that require further investigation. Most research studies consider just one institution in isolation, which prevents generalization of results. There are few empirical studies on strategy maps in HEIs. The link between BSC, IQA, and CQI requires more scholarly consideration. Implementation problems have been widely mentioned but have not been thoroughly examined, while the importance of digital dashboards in the process of monitoring is understudied.

Seven research questions are used to formulate the aims of the current literature review: (RQ1) How did HEIs transform traditional BSC perspectives? (RQ2) What role do strategy maps play in making vision explicit through KPIs? (RQ3) In what way is BSC linked to IQA, accreditation, and CQI? (RQ4) Which methods predominate in studies of BSC in higher education? (RQ5) What implementation obstacles and possible solutions can be mentioned in relation to the topic under discussion? (RQ6) What are the uses of digital dashboards in implementing BSC? (RQ7) What contribution can be made in theoretical and practical terms?

This research presents the following contributions. Theoretically, it integrates strategic management and quality assurance literature. Methodologically, it offers a systematic review (PRISMA compliance) of recent research findings (2020-2025). Conceptually, it suggests a comprehensive six-tier model to explain connections between vision, strategy maps, balanced scorecard perspectives, KPIs, assessment, and continuous quality improvement.

2. Methodology

2.1 Review Design

In this paper, a systematic literature review is applied following the PRISMA 2020 framework (Page et al., 2021). The review will draw upon both empirical and conceptual literature regarding the use of BSC in higher education, especially concerning its use in strategic vision, strategy maps, performance measurement, and continuous quality improvement. In this study, thematic analysis (Thomas and Harden, 2008) was conducted using open, axial, and selective coding procedures.

2.2 Search Strategy

The search process was carried out in ten scholarly electronic databases including Scopus, Web of Science, ScienceDirect, SpringerLink, Emerald Insight, Taylor and Francis Online, Wiley Online Library, SAGE Journals, MDPI, and Google Scholar. The period of time covered by the searches included the year between January 2020 and September 2025. For each research topic, ten different search queries, or strings, were created using the terms related to BSC ("Balanced Scorecard" OR "BSC" OR "performance scorecard"), higher education ("university" OR "higher education" OR "tertiary education") and performance and quality related ("performance evaluation" OR "strategy map" OR "quality assurance" OR "KPI" OR "continuous improvement").

Table 1 The Search Strategy and Inclusion/Exclusion Criteria

Category	Criteria / Details
Databases (10)	Scopus, Web of Science, ScienceDirect, SpringerLink, Emerald Insight, Taylor and Francis, Wiley, SAGE, MDPI, Google Scholar
Search period	January 2020 – September 2025
Core search strings	("Balanced Scorecard" OR "BSC") AND ("higher education" OR "university") AND ("performance evaluation" OR "quality assurance" OR "strategy map" OR "KPI" OR "continuous improvement")
Inclusion criteria	Topical relevance: explicit BSC application or adaptation in HEIs
	Empirical or conceptual contribution
	Performance evaluation focus with strategic or quality dimension
	Peer-reviewed journal articles, conference papers, or book chapters
	English language; published 2020–2025
Exclusion criteria	BSC in non-educational sectors without HEI application
	Tangential BSC mention only; K–12 focus without HEI

Category	Criteria / Details
	relevance
	Non-English publications; pre-2020 publications
	Non-peer-reviewed material; inaccessible full text; duplicate records
	Failing quality assessment threshold (< 7/9 criteria)
Quality threshold	Studies must meet ≥ 7 of 9 quality criteria (clear objectives, appropriate methodology, contextual description, data quality, analytical rigour, findings clarity, interpretation, limitations acknowledged, contribution articulated)

Note. The searches were performed in the title, abstract, and keywords sections when feasible within the capabilities of each database. Google Scholar was added for extra results.

2.3 PRISMA Selection Process and Final Set of Papers

The selection process was carried out in seven distinct phases. The preliminary search results yielded about 520 papers. After removing duplicates, there were 325 unique papers left. After the screening of titles and abstracts, the number of papers narrowed down to around 85. Out of these 85 papers, 42 papers qualified for inclusion based on full-text reviews. Next, the quality checklist comprising nine criteria was used, and 30 papers that scored ≥ 7/9 criteria were selected for thematic synthesis.

Figure 1 PRISMA Flow Diagram

IDENTIFICATION	Databases searched (n = 10); Boolean search strings applied (n = 10). Initial records identified: ~520 records. Duplicate records removed → 325 unique records.
SCREENING	Title and abstract screening against inclusion/exclusion criteria. Records excluded at title/abstract stage → 240 excluded. Records retained for full-text retrieval: ~85.
ELIGIBILITY	Full-text articles assessed for eligibility. Articles excluded after full-text review: 43 excluded (off-topic, insufficient quality, inaccessible full text). Articles eligible for quality assessment: 42.
QUALITY ASSESSMENT	Nine-criterion quality assessment checklist applied. Articles excluded below quality threshold (< 7/9): 12 excluded.
INCLUDED	Final studies included in thematic synthesis: 30.

Note. PRISMA flow adapted from Page et al. (2021). Stage counts are approximate. Round 1 searches yielded ~196 records and Round 2 yielded ~129 additional records prior to deduplication.

3. Conceptual Background

3.1 Strategic Vision and Performance Evaluation in HEIs

A strategic vision and mission statement define the core purpose and values of a higher education institution (HEI), providing the basis for its planning process and allocation of resources (Fuchs et al., 2020; Badawy et al., 2024). A performance appraisal system is used for assessing achievement towards strategic goals, providing accountability, and guiding decision-making about improvements (Wu et al., 2024). The main problem for most HEIs is the development of an effective performance appraisal system that will be consistent with strategic vision, consider different stakeholder perspectives, and serve both accountability and learning purposes (Kaplan and Norton, 1992, 1996).

3.2 Balanced Scorecard in Higher Education

Initially, the BSC was designed to address the drawbacks of pure financial performance measurement by grouping the performance metrics into four perspectives: Financial, Customer, Internal Processes, and Learning and Growth (Kaplan and Norton, 1992). The application of the BSC to higher education has necessitated many changes to the original structure. First, the Customer perspective is commonly referred to as the Student or Stakeholder perspective, while the Financial perspective expands on stewardship and sustainability. Secondly, a new perspective, such as Research and Innovation, is included (Selda, 2025; Al-dahiyat et al., 2022; Barra et al., 2021).

This adaptability has been demonstrated in various contexts, including Indonesian private universities, Portuguese public higher education institutions, Saudi public universities, Greek university departments, and Philippine state universities, among others (Sauri et al., 2023; Oliveira et al., 2021; Sharaf-Addin and Fazel, 2021; Chalaris and Katsaros, 2020; Jugo et al., 2025). The common thread running through all these examples is the desire to tie organizational vision with performance measures using a consistent multi-perspective approach.

3.3 Strategy Maps and Strategic Alignment

Strategy maps illustrate the causal relationship between objectives within the BSC framework (Kaplan and Norton, 2000, 2004). In higher education institutions, their roles include vision translation into objectives, identifying assumptions within the strategy, determining KPIs and ensuring alignment of activities in different organizational levels (Chalaris and Katsaros, 2020; Nazari-Shirkouhi et al., 2020). A common chain of causality in HEIs' strategy maps starts with Learning and Growth and ends with Student and Stakeholder results as well as Financial Sustainability (Sauri et al., 2023). Recent models use techniques like DEMATEL and ANP to better understand objective interrelationships compared to using expert opinions only (Nazari-Shirkouhi et al., 2020).

3.4 Continuous Quality Improvement and Internal Quality Assurance

Continuous Quality Improvement uses the principles of Plan-Do-Check-Act to improve the processes within organizations by following cycles of planning, implementing, evaluating, and refining (Deming, 1986; Juran and Godfrey, 1999). Within higher education, CQI is strongly associated with IQA models involving programme reviews, self-assessment, consultation, benchmarking, and improvement planning (ENQA, 2015; Harvey and Green, 1993). If BSC models are consistent with quality assurance standards, they can help quality assessment become more strategic, data-driven, and focused on improvement. Such consistency allows for rapid detection of gaps and creates feedback loops needed to convert evaluation results into effective action plans (Oliveira et al., 2021; Wu et al., 2024; Rahmah et al., 2025).

Building on the conceptual framework outlined above, the thematic review that follows examines how these constructs have been operationalized, adapted, and evaluated across diverse higher education institutions in recent literature.

4. Thematic Review and Synthesis of the Literature

Synthesis on themes found among the 30 articles led to seven broad clusters. Table 2 below highlights these seven clusters based on their characteristics such as studies, methodologies, findings, and challenges that exist.

Table 2 Thematic Classification of the Literature

Theme	Representative Studies	Dominant Methods	Key Findings	Limitations
BSC as Strategic Alignment Tool	Sauri et al. (2023); Oliveira et al. (2021); Sharaf-Addin and Fazel (2021); Chalaris and Katsaros (2020); Badawy et al. (2024); Muda (2025)	Case studies; stakeholder workshops; strategic planning frameworks	HEIs translate strategic plans into KPIs using adapted perspectives; strategy maps communicate and cascade strategy; stakeholder engagement enhances relevance and buy-in	Predominantly single-institution cases; causal alignment effects not tested; long-term sustainability undocumented
BSC as KPI-Based Performance Evaluation	Nazari-Shirkouhi et al. (2020); Barra et al. (2021); Wu et al. (2024); Talebzadeh et al. (2025); Tobing et al.	Fuzzy MCDM (DEMATEL, ANP, TOPSIS); importance-performance analysis; quantitative scoring	MCDM methods enable rigorous indicator prioritization; importance-performance analysis identifies improvement priorities; student/stakeholder	Small expert panels; context-specific indicator weights; MCDM complexity limits adoption; longitudinal

Theme	Representative Studies	Dominant Methods	Key Findings	Limitations
	(2019)		perspective frequently emerges as highest priority	tracking rare
Strategy Maps and Cause-and-Effect Logic	Chalaris and Katsaros (2020); Nazari-Shirkouhi et al. (2020); Sauri et al. (2023); Oliveira et al. (2021)	Stakeholder workshops; DEMATEL/ANP; qualitative causal mapping	Strategy maps translate vision into concrete objectives; typical causal flow: Learning and Growth → Internal Processes → Student/Stakeholder → Financial/Sustainability	Causal linkages asserted, not empirically tested; longitudinal validation data absent; overly complex maps recreate indicator overload
BSC and Quality Assurance	Oliveira et al. (2021); Bell et al. (2023); Wu et al. (2024); Barra et al. (2021)	Case studies; accreditation alignment analysis; programme review documentation	BSC provides structured evidence for programme review and accreditation; integration makes QA more strategic and evidence-based	Predominantly descriptive evidence; impact on accreditation outcomes not rigorously assessed; cross-institutional evidence lacking
BSC and Continuous Quality Improvement	Nazari-Shirkouhi et al. (2020); Badawy et al. (2024); Fuchs et al. (2020); Muda (2025)	Importance-performance analysis; longitudinal case studies; design science	BSC monitoring identifies performance gaps; feedback loops linking evaluation to corrective action are critical; some implementations report measurable improvements	Short follow-up periods; attribution difficulties without control groups; organizational learning processes underexplored
BSC Implementation Challenges	Sharaf-Addin and Fazel (2021); Muda (2025); Jugo and Armas (2025)	Surveys; interviews; comparative case studies	Common barriers: cultural resistance, inadequate IT, poor data quality, indicator overload, weak leadership commitment; mitigation	Barrier identification often anecdotal; mitigation effectiveness rarely evaluated empirically

Theme	Representative Studies	Dominant Methods	Key Findings	Limitations
			requires stakeholder engagement, phased rollout, and capacity building	
Digital Dashboards and Data-Driven Evaluation	Rahmah et al. (2025); Kethari and Naik (2023); Bell et al. (2023); Yan (2024)	Design science (dashboard prototyping); usability evaluation; implementation case studies	Interactive dashboards enable real-time BSC monitoring; BI tools integrate multiple data sources; dashboards improve accessibility for decision-makers; sustainability-focused dashboards integrate ESG indicators	Most studies report prototypes, not operational deployments; impact and ROI evidence limited; user adoption and change management underexplored

Note. Themes were identified through open, axial, and selective coding of the 30 included studies (Thomas and Harden, 2008). Representative studies are illustrative, not exhaustive.

4.1 BSC as a Strategic Alignment Tool

The first major cluster views BSC mainly as a mechanism for translating strategic vision into operational goals. According to Sauri et al. (2023), BSC was implemented in ITB Swadharma (Indonesia) through the utilization of four adjusted perspectives which were consistent with the strategic plan of the organization. It was observed that even smaller organizations could implement BSC in order to translate strategies into measurable metrics. Oliveira et al. (2021) discussed an example from Portugal where BSC perspectives were adjusted based on the strategic priorities and QA measures of an institution. In the context of Saudi Arabian public universities, Sharaf-Addin and Fazel (2021) revealed that the stakeholder participation in BSC framework development was the key reason behind successful BSC implementation. In all cases, researchers have identified that the development of strategy maps by taking into account evidence was significantly more effective than other approaches for developing BSC – the process of BSC development itself can be considered strategic (Muda, 2025; Badawy et al., 2024).

4.2 BSC-Based Performance Indicators and KPIs

The fourth category involves the use of quantitative and multicriteria techniques to prioritize and assess the performance of indicators. In this vein, Nazari-Shirkouhi et al. (2020) propose an IPA model based on the integrated fuzzy DEMATEL, ANP, and TOPSIS approaches to rank the performance and relative importance of indicators

for higher education institutions in Iran and Lithuania, providing an advanced methodology for assigning weights to the indicators and determining improvement priorities. Talebzadeh et al. (2025) use a fuzzy BSC-AHP model for assessing the performance of universities and observe that the students and stakeholders perspective always holds the topmost position. Wu et al. (2024) adopt the combination of entropy weights and hierarchical analysis to assess the performance of educational management along the four perspectives of BSC, showing that the application of quantitative validation is crucial.

Table 3 Adapted Balanced Scorecard Perspectives in Higher Education

Adapted Perspective	Typical Indicators	Strategic Purpose	QI Relevance
Financial Sustainability	Revenue diversification, cost per student, research funding, budget balance, financial reserves	Ensure long-term financial viability and efficient resource allocation	Enables investment in quality improvement initiatives and infrastructure
Student and Stakeholder	Student satisfaction, graduate employment, employer satisfaction, alumni engagement, net promoter score	Meet and exceed expectations of students, employers, alumni, and society; enhance institutional reputation	Stakeholder feedback drives programme improvement and service enhancement
Internal Processes	Programme completion rates, time-to-degree, administrative efficiency, service response times, error rates	Optimize efficiency and effectiveness of academic and administrative processes	Process improvement enhances student experience and operational quality
Learning and Growth	Faculty qualifications, professional development participation, staff satisfaction, technology adoption, innovation climate	Build organizational capacity, develop human capital, foster innovation and continuous learning	Capacity building enables sustained quality improvement and adaptation to change
Research and Innovation	Research publications, citations, research funding, patents, industry partnerships, PhD completions	Advance knowledge creation, enhance research reputation, contribute to innovation ecosystem	Research quality and impact are core dimensions of institutional excellence
Societal Impact	Community partnerships, public service, social mobility indicators, regional economic impact, sustainability initiatives	Demonstrate contribution to society, regional development, and the public good	Societal impact reflects institutional mission fulfilment and public accountability

Adapted Perspective	Typical Indicators	Strategic Purpose	QI Relevance
Quality Assurance	Accreditation status, programme review outcomes, quality audit results, standards compliance, improvement initiatives	Ensure systematic quality assurance, maintain accreditation, demonstrate standards compliance	Explicit QA perspective integrates quality monitoring into strategic performance framework
Sustainability (ESG)	Carbon footprint, energy efficiency, waste reduction, diversity metrics, governance quality, ethical practices	Advance environmental sustainability, social responsibility, and governance excellence	Aligns institutional performance measurement with global sustainability agendas

Note. Not all HEIs adopt all perspectives; typical implementations include 4–6 adapted perspectives tailored to institutional mission (Sauri et al., 2023; Sharaf-Addin and Fazel, 2021; Oliveira et al., 2021). Sustainability and Quality Assurance perspectives represent emerging adaptations in recent literature.

4.3 Strategy Maps and the Translation of Vision into Objectives

Other studies pay particular attention to the construction of strategy maps as well as causal link validity issues. Chalaris and Katsaros (2020) propose a strategic mapping procedure for a higher education institution (HEI) in Greece that involved much consultation and linking of objectives. They conclude that the developed strategy map was predominantly used as a communication tool. Nazari-Shirkouhi et al. (2020) take this research one step further by applying DEMATEL analysis to identify interdependencies between objects and hence validating causal hypotheses to some extent. The commonality in all the papers is the fact that causal links in strategy maps are claimed based on expert knowledge but not verified through long-term analysis of KPIs. Overcomplication of strategy maps, which results in an indicator overload situation, becomes a major concern for both Nazari-Shirkouhi et al. (2020) and Talebzadeh et al. (2025).

4.4 BSC, Internal Quality Assurance, and CQI

Another notable research cluster explores the topic of BSC-QA integration. In their case study, Bell et al. (2023) investigate the application of BSC principles to the development of an online MBA programme that seeks AACSB accreditation in the United States. Oliveira et al. (2021) explore the topic of BSC-QA integration in greater detail than any previous work, providing a comprehensive overview of how the BSC approach is employed in the review process of programmes within a Portuguese HEI. Finally, Fuchs et al. (2020) expand on the notion of BSC-IQA integration by considering the use of BSC principles to assess the sustainability-related aspects of CQI. The existing literature offers several examples of how the BSC-QA integration

concept may be used in practice. However, empirical evidence regarding the positive effects of such integration on programme quality or accreditation results is largely descriptive.

4.5 Implementation Challenges and Risk Mitigation

The difficulties faced in implementation clusters have shown a persistent trend of common difficulties that occur regardless of various situations. Cultural opposition from faculty members is the most commonly mentioned obstacle, due to the conflict between management-oriented performance management and academics' professional beliefs (Sharaf-Addin and Fazel, 2021). Overwhelming number of indicators and bad data quality are the most technically difficult obstacles; discipline that ensures a concise and concentrated group of KPIs becomes crucial to avoid fragmentation (Nazari-Shirkouhi et al., 2020; Talebzadeh et al., 2025). Varying commitment by leaders and weak IT infrastructures are the most situation-dependent obstacles (Muda, 2025; Rahmah et al., 2025).

4.6 Digital Dashboards and Future Directions

The latest group focuses on digital technologies to operationalize BSCs. Rahmah et al. (2025) created a dashboard tool for performance management at an Indonesian HEI institution allowing real-time monitoring and presentation through all BSC perspectives. Kethari and Naik (2023) provide a BSC dashboard related to sustainability, which involves using business intelligence technologies that consider ESG indicators. Yan (2024) provides the example of BSC usage in internal auditing in universities in connection with the use of cloud and artificial intelligence technologies. The common weakness in this cluster of studies is that there are no mature examples of dashboards used and there are no evaluations of their effects on decision-making quality or other results.

5. Proposed Integrated Conceptual Framework

According to the analysis of the literature, the proposed review develops an integrated framework with six layers explaining the connections between strategic vision, strategy maps, modified BSC perspectives, KPIs, performance appraisal, and CQI in higher education institutions. Figure 2 outlines the structure of the framework.

Figure 2 Integrated BSC-Based Performance Evaluation Framework for Higher Education

Layer 1: Strategic Foundation	Institutional vision, mission, core values, strategic priorities, quality policy, stakeholder expectations → articulates institutional purpose and direction.
Layer 2: Strategy Map	Translates strategic priorities into specific objectives; depicts cause-and-effect linkages across perspectives; makes strategic logic explicit, visual, and testable.
Layer 3: Adapted BSC Perspectives	4–6 perspectives tailored to HEI mission: Student and Stakeholder / Academic Excellence / Research and Innovation / Internal Processes / Learning and Growth / Financial Sustainability / Societal Impact / Quality Assurance.
Layer 4: KPI System	SMART indicators per objective: definition, target, data source, responsible unit, reporting frequency, and indicator type (leading vs. lagging).
Layer 5: Performance Evaluation	Data collection, dashboard reporting, gap analysis, benchmarking, self-evaluation, strategic review meetings → provides evidence for accountability and decision-making.
Layer 6: CQI Loop (Feedback)	Root-cause analysis of gaps → corrective action planning → improvement implementation → programme review → stakeholder feedback → strategic learning → revision of vision, strategy, and objectives → back to Layer 1.

Note. Each layer feeds into the next; the CQI Loop (Layer 6) feeds back to Layer 1 through strategic learning, creating a dynamic cycle of institutional adaptation and improvement. Adapted from synthesis of Kaplan and Norton (1992, 1996, 2000, 2004); Oliveira et al. (2021); Badawy et al. (2024); Nazari-Shirkouhi et al. (2020).

First of all, Layer 1 is responsible for setting the normative basis of institutional vision, mission, core values, and quality policy that serve as a compass for all other layers. Layer 2 is responsible for developing a strategy map in which strategic objectives are laid down according to BSC perspectives and clear causal relationships are established between strategic objectives related to foundational BSC perspectives (Learning and Growth perspective, Internal Process Perspective) and their impacts on higher-level objectives, such as Student and Stakeholder perspective, Financial Sustainability perspective, and Societal Impact perspective. The third layer entails the operationalization of strategic objectives by means of creating an adapted set of 4-6 BSC perspectives relevant for a particular institutional mission. In its turn, the fourth layer relates to establishing SMART objectives for each strategy objective, indicating targets, data sources, and responsible units. Layer 5 implies systematic monitoring and analyzing KPI results

using digital dashboard. Finally, the sixth layer involves translating evaluation results in terms of conducting root cause analysis, developing a plan of actions, and implementing necessary changes.

There are four contributions to the body of knowledge associated with the proposed framework. Firstly, it combines several components of organizational strategy and performance, previously treated separately, into a multi-layered system. Secondly, it provides a new way of understanding the role of BSC in organizational performance by positioning it as an instrument for achieving strategic alignment as well as enhancing quality improvement processes. Thirdly, it introduces the concept of feedback loops and continuous learning into the existing discourse on performance management. Finally, it creates an easy-to-follow implementation roadmap that recognizes the importance of context.

6. Discussion

6.1 BSC as a Strategy Translator: From Vision to Measurable Objectives

One such finding highlights that BSC acts as a translating mechanism where the visionary and mission statements are translated into strategic goals and performance metrics (Sauri et al., 2023; Chalaris and Katsaros, 2020; Sharaf-Addin and Fazel, 2021). Such an approach solves a common problem faced by universities in their strategic planning process—the disconnect between their visions and missions and their implementation. The success of such a translation process hinges on how well the strategy maps are developed. It has been observed that participatory and evidence-based strategy map development leads to more comprehensive frameworks than when the strategy map is built through top-down approaches—this implies that the process of developing strategy maps can itself be considered a strategic activity (Muda, 2025; Badawy et al., 2024).

6.2 Strategy Maps and the Risk of Isolated KPIs

The objective of strategy maps is to avoid an abundance of standalone KPIs by grouping the indicators into a logical cause-and-effect structure (Kaplan and Norton, 2000, 2004). The literature review indicates that well-developed strategy maps can play this role, allowing organizations to view their performance from a systems perspective rather than individual metrics (Chalaris and Katsaros, 2020; Oliveira et al., 2021). Two substantial limitations become apparent. On one hand, the connections tend to be postulated based on expert opinion rather than corroborated by KPI data spanning a period of time—a discrepancy between perceived and proven causation undermining the reliability of strategic maps' logic. On the other hand, certain applications lead to strategy maps with an abundance of objectives, which, ironically, revives the problem that these maps were supposed to address (Nazari-Shirkouhi et al., 2020; Talebzadeh et al., 2025). Conciseness counts: successful strategy maps

need to highlight a limited number of essential objectives and relationships rather than mapping all aspects of organizational performance.

6.3 BSC, Quality Assurance, and the Tension Between Compliance and Learning

The incorporation of BSC with IQA and accreditation has the ability to enhance quality assurance to become more strategic, evidence-based, and improvement-focused (Oliveira et al., 2021; Bell et al., 2023). The research literature, on the other hand, identifies an enduring problem in that BSC may be used as a tool to respond to external accountability requirements and, therefore, become a bureaucratic system producing reports rather than engaging in a process of continuous improvement (Sharaf-Addin and Fazel, 2021). There is indeed the danger of the incorporation of BSC-QA resulting in an audit and control culture rather than an inquiry and improvement one (Harvey and Green, 1993; ENQA, 2015). In order to prevent this, BSC-QA integrations need to deliberately include provisions to ensure that findings lead to improvements.

6.4 CQI: Changing the Function of Evaluation

Connecting the BSC approach to the CQI cycle changes the focus of performance evaluation from being a retrospective exercise to becoming a proactive learning process (Badawy et al., 2024; Nazari-Shirkouhi et al., 2020). Performance evaluation becomes an organizational development tool when the monitoring system is clearly linked to the planning for improvement and correction measures. There are some empirical indications that BSC-based CQI may lead to performance enhancement (Muda, 2025; Rahmah et al., 2025), although they are constrained by the lack of control groups and follow-up periods, and by the use of subjective reporting as outcome measures. One aspect of the process of using BSC data for organizational development through effective CQI remains under-researched—the black box of BSC-based CQI—and this should become a major research area in the future.

6.5 Contextual Adaptation as a Prerequisite

It can be seen throughout the literature that successful BSC application involves adapting the process based on the specific context of the institution in terms of its mission, governing structure, stakeholder arrangement, and culture (Muda, 2025; Sharaf-Addin and Fazel, 2021). In many cases, the application of templates from corporate practices or from other organizations does not work due to the unique nature of the institution where the process is implemented. From the analysed literature, one can see that BSC is successfully adapted at Indonesian private universities, Portuguese public HEIs, Saudi public universities, and Philippine state universities, which proves the adaptability of the BSC approach. However, the high level of contextual adaptation may affect the possibility of benchmarking and learning (Nazari-Shirkouhi et al., 2020; Talebzadeh et al., 2025).

7. Implications, Limitations, and Future Research

7.1 Theoretical and Practical Implications

From a theoretical perspective, the review integrates quality assurance research and higher education management research by showing that strategy alignment and quality improvement are complementary activities that could be combined using the Balanced Scorecard approach. The suggested framework of six layers represents an extension of Balanced Scorecard theory from merely a measurement approach to including strategy implementation and organizational learning, in accordance with the later definition of Kaplan and Norton (1996), who considered the Balanced Scorecard as a tool for strategy implementation.

For organizational leaders and management, the analysis suggests three actionable issues. The first priority is the need for strong leadership support and a learning-focused organizational culture when implementing BSC. Secondly, there is the need to appreciate the participatory development of strategy maps as a valuable strategic dialogue, and not simply delegate the task. Thirdly, BSC must be incorporated into the annual budgeting process to ensure that the strategic agenda dictates resource allocation. For Quality Assurance departments, BSC provides an avenue for aligning performance indicators with accreditation requirements, thereby minimizing unnecessary overlap and adding a strategic edge to quality assurance. For IT/data governance teams, investing in data integration tools and interactive dashboards is essential for successful monitoring using BSC.

7.2 Limitations

There are several limitations to the review. Limitation one is the limitation of using only English language publications, which might cause language bias since other languages might provide more data. The timeframe for the search (2020-2025) ensures that the content of the search is recent but means that seminal studies are not considered. The search also did not consider any grey literature, such as policy documents or technical information that could provide information regarding implementation. There is also great variation in the included studies in terms of methodology since there is a large number of methods used, including fuzzy MCDM analysis and design science prototyping, among others. There is also a lack of longitudinal studies and quasi-experiments that could allow drawing conclusions on the effectiveness of BSC implementation. Trend analysis in section four is also descriptive without considering any bibliometrics.

7.3 Future Research Directions

Among the most urgent gaps is a lack of convincing longitudinal research on whether BSC implementations can bring about consistent improvements in performance and quality of outcomes within implementing organizations. Specifically, longitudinal quasi-experiments comparing BSC and non-BSC institutions during 3–5 years using, for

example, the methods of propensity score matching and difference-in-differences would enhance the power of causal inferences. The application of structural equation modeling or path analysis based on several years of KPIs would help overcome one of the central limitations of empirical verification of causal connections between elements in strategy maps. Cross-institutional and cross-national research is necessary to identify the generalizable features and contextual variables moderating the BSC efficiency. Psychometrically validated standardization of KPI dictionaries will help avoid unnecessary explosion of indicators and create benchmarking opportunities. Experimental or quasi-experimental evaluation of digital dashboards with regard to their impact on decision-making and institution performance will be especially urgent amid the rise in their popularity. The final area where the current BSC practice needs further elaboration is related to addressing new challenges associated with sustainability, inclusion, and digitalization. Table 4 provides an overview of main barriers and mitigating measures alongside with future research directions.

Table 4 Implementation Barriers, Mitigation Strategies, and Future Research Priorities

Barrier	Effects on BSC and QI	Mitigation Strategy	Related Future Research Priority
Cultural resistance from faculty	Faculty perceive BSC as managerial control; quality improvement initiatives are resisted; compliance culture prevails over improvement culture	Engage faculty from outset; frame BSC as academic excellence tool; pilot projects; ongoing training and support	Longitudinal studies on BSC as organizational change intervention; culture change mechanisms in HEIs
Inadequate IT infrastructure	Limits data collection, integration, and reporting; quality improvement decisions delayed or based on incomplete data	Invest in integrated data systems and dashboard tools; phase implementation to match IT capacity	Experimental evaluation of digital BSC dashboard effectiveness; ROI of data infrastructure investment
Poor data quality and integration	Indicator validity undermined; quality improvement priorities misidentified; stakeholders distrust evidence	Establish data governance policies; integrate data sources; conduct data audits; provide data literacy training	Development and psychometric validation of standardized KPI dictionaries; data governance frameworks for HEIs

Barrier	Effects on BSC and QI	Mitigation Strategy	Related Future Research Priority
Indicator overload	Measurement burden dilutes focus; decision-makers overwhelmed; quality improvement resources spread thin	Limit institution-level KPIs (15–25); use strategy map to focus on critical objectives; review and prune regularly	Optimal KPI set size and composition; benchmarking studies; Delphi-based KPI consensus frameworks
Variable leadership commitment	BSC lacks legitimacy and resources; quality improvement is not prioritized; initiatives lack authority	Secure visible, sustained leadership commitment; include BSC in leadership performance evaluation; dedicate resources	Quasi-experimental studies on conditions for sustained BSC impact; cross-national comparative evidence
Misalignment with existing processes	BSC operates as standalone system; quality assurance fragmented; duplication of effort	Integrate BSC with strategic planning, budgeting, and QA cycles; align indicators with accreditation standards	Empirical testing of strategy map causal linkages; cross-institutional comparative design science research
Contextual inappropriateness	Imported frameworks fail to fit institutional culture, mission, or governance; superficial adoption	Adapt perspectives, indicators, and processes to context; engage stakeholders in contextualization; pilot before scaling	Cross-institutional comparison across diverse HEI types and national contexts; boundary conditions of BSC applicability

Note. Effective mitigation requires addressing multiple barriers simultaneously through comprehensive change management strategies (Muda, 2025; Sharaf-Addin and Fazel, 2021). Future research priorities are organized by barrier type to facilitate targeted scholarly inquiry.

8. Conclusion

The following systematic literature review is an attempt to summarize and analyze the empirical and theoretical research findings regarding the utilization of the balanced scorecard performance measurement technique within the higher education sector, especially concerning strategic vision, strategy map, and continuous quality improvement. According to the results of the review, the BSC models have been widely implemented in various segments of the higher education sector from 2020 to 2025.

Three conclusions are worth highlighting. Firstly, there is evidence that HEIs apply perspectives of BSC systematically, going beyond the initial four perspectives in terms of corporate performance to include those of students and stakeholders, research, sustainability, and quality assurance. Secondly, the use of strategy maps is crucial for translation and alignment purposes; however, the causal linkages of the concept need further empirical verification. Thirdly, the convergence of BSC and IQA/CQI frameworks is a major step forward in conceptual development and application; yet, careful design is needed to ensure real improvement.

The suggested framework that integrates six layers is the first conceptual contribution of this review. Through the establishment of the relationships between strategic base, strategy maps, BSC viewpoints adapted to each perspective, KPIs, performance assessment, and CQI cycles, this framework treats BSC as both a means for strategic alignment and an instrument for quality improvement. The integration of strategic management literature with quality management literature in one single model is achieved through this framework.

The key implication, therefore, is that performance evaluation within higher education needs to evolve from merely measuring for the sake of complying to learning and improvement. In cases where BSC is integrated with a view towards improving institutional performance through proper evaluation of results for action, it can help in facilitating institutional development. However, when used as a tool of control by those at the top, BSC can only lead to more bureaucratic reporting. The research issues identified in this literature review such as longitudinal validation, testing of causality of strategy map, institutional comparative studies, dictionary of key performance indicators, and assessment of digital dashboards will be critical in helping improve the body of knowledge in BSC-based performance evaluation within higher education.

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