The Es Economics and Entrepreneurship
Vol. 4, No. 02, December 2025, pp. 215 – 231
ISSN: 2964-8920, DOI: 10.58812/esee.v4i02

Strategic-Operational Synergy: A Systematic Review of POAC–PDCA Integration for Enhancing Organizational Agility

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Article Info

Article history:

Received Sep, 2025
Revised Dec, 2025
Accepted Dec, 2025

Keywords:

Operational management;
Organizational agility;
PDCA;
POAC;
Strategic integration

ABSTRACT

In an era of business transformation marked by extreme volatility and the uncertainty of the strategic environment, modern organizations face ongoing pressure to achieve operational excellence while maintaining adaptive flexibility. The complexity of contemporary challenges demands the integration of managerial approaches that emphasize procedural efficiency and strategic responsiveness through the synergy of Planning, Organizing, Actuating, Controlling (POAC) and Plan-Do-Check-Act (PDCA). This study aims to systematically analyze POAC-PDCA integration to improve organizational agility, strategic effectiveness, and sustainable adaptability in a dynamic business environment. The research method used Systematic Literature Review (SLR) with the PRISMA protocol, analyzing 12 high-quality Scopus journals for the period 2019-2024 from five main academic databases. The results showed that the POAC-PDCA integration was able to increase time responsiveness by up to 70%, operational flexibility through a 53% reduction in setup time, and measurable strategic adaptability across the health, manufacturing, port, and waste management sectors. The conceptual model developed positions POAC as the structural foundation that strengthens the PDCA cycle as a sustainable diagnostic-corrective mechanism. The study's conclusions affirm that successful integration is achieved through vertical alignment, horizontal integration, systematic feedback loops, and a culture of continuous improvement, requiring technological support and organizational mindset transformation to achieve the optimal balance between operational stability and strategic flexibility.

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1. INTRODUCTION

In an era of business transformation marked by extreme volatility and the uncertainty of the strategic environment, modern organizations face ongoing pressure to achieve operational excellence while maintaining adaptive flexibility. The complexity of contemporary challenges demands that organizations integrate managerial approaches that not only

emphasize procedural efficiency, but also focus on strategic responsiveness and continuous transformation capabilities. In this context, two fundamental management paradigms, namely POAC (Planning, Organizing, Actuating, Controlling) and PDCA (Plan-Do-Check-Act) have gained significant relevance as strategic instruments to achieve a balance between operational stability and organizational agility. The POAC approach, conceptualized as a classical management framework, provides a comprehensive structural foundation for the management of organizational resources through the stages of systematic planning, optimal organization, targeted execution, and continuous control [1]. The fundamental characteristic of POAC lies in its ability to form a structured management architecture, where each component interacts with each other to create a coherent and integrated governance system. Meanwhile, the PDCA methodology presents a cyclical approach that emphasizes organizational learning and continuous improvement through iterative mechanisms that allow organizations to adapt responsively to changes in the external environment [2].

The transformation of contemporary management paradigms indicates that organizations that successfully achieve sustainable competitive advantage are those that are able to integrate structural stability with operational flexibility. Empirical research shows that organizations with superior levels of agility tend to exhibit better financial performance and higher resilience in the face of market disruptions [3]. In this context, the synergy between POAC and PDCA offers significant strategic potential, where the POAC structural framework can be strengthened by PDCA's adaptive mechanisms to create a management system that is at the same time stable and responsive. The integrated implementation between POAC and PDCA creates unique organizational dynamics, where the strategic planning function (POAC) can be strengthened by continuous learning cycles (PDCA), while the established organizational structure can be facilitated by systematic incremental improvement mechanisms. This synergistic approach allows organizations to optimize operational effectiveness while maintaining the innovation and adaptation capacity necessary to respond to the dynamics of an increasingly complex and unpredictable business environment [4].

Although POAC and PDCA have been widely recognized as effective management approaches, most existing research tends to examine the two methodologies separately without exploring the synergistic potential that can be generated through strategic integration. This limitation of perspective creates a gap in understanding how the combination of POAC structural stability and PDCA's adaptive flexibility can result in significant improvements in organizational performance. Based on the identification of these gaps, this study formulates a fundamental question: How can the integration of POAC and PDCA be optimized to improve organizational agility, strategic effectiveness, and sustainable adaptability in the context of a dynamic and unpredictable business environment? This research aims to conduct a systematic analysis of the international literature that examines the integration of POAC and PDCA and identify synergy patterns that can improve organizational performance holistically. Specifically, this study seeks to explore the integration mechanisms that enable organizations to achieve the optimal balance between operational stability and strategic flexibility through the application of a combination of the two management approaches. This study also intends to identify the critical factors that affect the effectiveness of the integrated implementation of POAC-PDCA and formulate a conceptual framework that can be used as a practical guide for organizations in optimizing the synergy between the two management methodologies.

The main contribution of this research lies in a holistic approach that positions POAC and PDCA not as separate management methodologies, but as integrated systems that can create strategic synergies for improving organizational

agility. In contrast to previous studies that tended to analyze POAC and PDCA sectorally, this study adopts a systemic perspective that explores the dynamic interactions between the two approaches and identifies integration mechanisms that can optimize organizational effectiveness. The methodological novelty of this research is also reflected in the use of a comprehensive systematic literature review approach to analyze current research trends and identify knowledge gaps that still need to be explored further. The originality of this study is reinforced by the specific focus on organizational agility as the main outcome of POAC-PDCA integration, a perspective that has not received adequate attention in the contemporary management literature. This research also presents a theoretical contribution through the development of a conceptual framework that explains how the synergy between structural stability and adaptive flexibility can be achieved through the integrated implementation of the two management methodologies. Thus, this research is expected to make a significant contribution to the development of strategic management theory and provide practical guidance for organizations in optimizing performance through the synergistic integration of POAC and PDCA.

2. LITERATURE REVIEW

2.1 POAC Concept

The POAC (Planning, Organizing, Actuating, Controlling) management approach has deep historical roots in the development of modern administrative theory, in particular through the fundamental contribution of Henri Fayol who is known as the pioneer of administrative management theory. Rooted in Henry Fayol's classic management theory, POAC remains the basis for the planning and organization of modern organizational strategies [5]. The conceptualization of POAC as an essential management function has undergone significant evolution since its initial formulation in the early 20th century, yet it still retains its relevance in the context of contemporary organizations facing increasing operational complexity. The implementation of POAC in modern organizations reflects the fundamental need for a systematic managerial structure, where each component plays a strategic role in achieving organizational effectiveness through optimal resource coordination and integrated process management. The planning dimension in the POAC framework emphasizes the importance of a comprehensive strategic formulation, which allows organizations to anticipate future challenges and design realistic goal achievement trajectories. The organizing aspect focuses on structuring organizational resources, both in the form of responsibility allocation, division of labor, and the formation of a hierarchy of authority that supports operational efficiency. The actuating component is closely related to the mobilization and motivation of human resources to achieve the set targets, while the controlling function ensures that actual performance is aligned with the expected standards through continuous monitoring and evaluation mechanisms.

2.2 PDCA Concept

The PDCA (Plan-Do-Check-Act) methodology was developed based on the principles of continuous improvement introduced by W. Edwards Deming, who adapted Shewhart's cyclical concept to create a systematic framework for organizational learning and process optimization. Developed by Deming, PDCA is a continuous improvement cycle used in quality management and operational innovation [6]. The fundamental characteristic of PDCA lies in its iterative approach that allows organizations to adapt responsively to environmental changes through never-ending cycles of evaluation and improvement. The implementation of PDCA in the context of quality management and operational innovation has been proven to be effective in improving organizational performance

through structured and empirical data-based learning mechanisms. The planning stages in the PDCA cycle emphasize problem identification, root cause analysis, and formulation of potential solutions based on a deep understanding of the organizational context. The implementation phase (do) involves implementing a solution on a limited scale to test the effectiveness of the chosen approach. The evaluation component (check) focuses on analyzing implementation results through performance measurement and comparison with set targets. The follow-up stage (act) integrates the learned to standardize best practices or modify approaches based on the results of a comprehensive evaluation.

2.3 POAC and PDCA Integration

The synergy between POAC and PDCA creates a holistic management paradigm that combines structural stability with adaptive flexibility, resulting in an organizational system that is both structured and responsive to external environmental dynamics. When POAC provides a structural and strategic framework, PDCA enhances it with adaptive correction mechanisms, creating an ever-evolving and efficient organizational cycle [7]. The integration of these two approaches allows organizations to gain a competitive advantage through optimization of operational efficiency and simultaneous increase of innovation capacity. The structural framework provided by POAC is strengthened by PDCA's adaptive correction mechanism, creating an ever-evolving organizational cycle and being able to maintain efficiency in the face of unpredictable change. The integrated implementation of POAC-PDCA results in unique organizational dynamics, where the strategic planning function can be enriched by continuous learning from the PDCA cycle, while an established organizational structure can be facilitated by systematic incremental improvement mechanisms. This synergistic approach allows organizations to optimize the balance between process standardization and operational flexibility, creating dual capabilities that are essential to survive and thrive in a volatile and uncertain business environment.

2.4 Theoretical Framework

The theoretical foundation of POAC-PDCA integration can be conceptualized through the convergence of three main theoretical perspectives: Systems Theory, Contingency Theory, and Dynamic Capabilities. Systems theory provides a foundation for understanding the complex interconnections between various organizational components, where POAC and PDCA function as intersecting subsystems to create optimal organizational outputs. This perspective emphasizes the importance of understanding the organization as a holistic entity where overall effectiveness depends on the synergy between the constituent components. Contingency Theory contributes to the understanding that the effectiveness of POAC-PDCA integration depends on the contextual characteristics of the organization, including size, complexity, technology, and the external environment. This contingent approach recognizes that there is no universal formula for the implementation of integration, but rather requires strategic adaptation based on the specific conditions of each organization. Meanwhile, the Dynamic Capabilities perspective emphasizes the ability of organizations to reconfigure resources and competencies in response to changing environments, where POAC-PDCA integration serves as a mechanism for developing adaptive capabilities that are essential for the organization's long-term competitive survival.

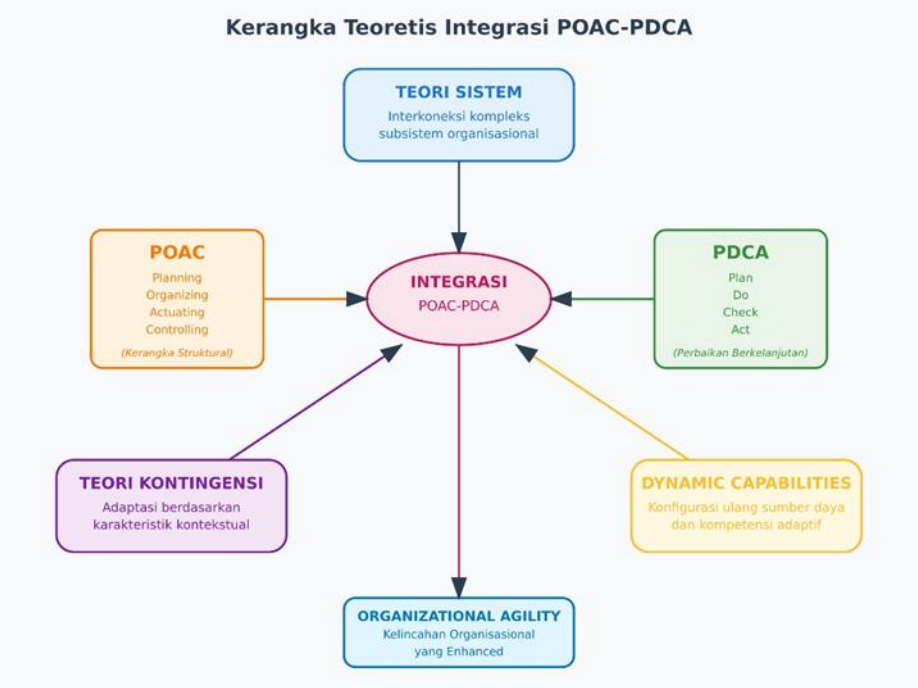

Figure 1. Theoretical Framework

3. METHODS

3.1 *Review Method*

This study adopts a Systematic Literature Review (SLR) approach by applying the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) protocol as the main methodological framework. The implementation of PRISMA was chosen because of its ability to provide a systematic and transparent structure in the process of identifying, selecting, and analyzing literature relevant to the research topic. The PRISMA protocol ensures methodological rigor through structured and replicable stages, thereby increasing the validity and reliability of the review results. This approach allows researchers to conduct a comprehensive evaluation of the existing literature on the integration of POAC and PDCA, while minimizing selection bias and maximizing the representativeness of research findings.

3.2 *Inclusion and Exclusion Criteria*

The inclusion criteria for this study include scientific articles published in reputable journals with a ranking of Q1 to Q3 based on the Scimago Journal Rank (SJR) classification, which guarantees the quality and academic credibility of the published publications. Temporal boundaries are set in the period 2019-2024 to ensure the relevance and actuality of research findings in the context of contemporary management developments. The selected articles must be published in English to facilitate access to quality international literature, as well as have a substantive focus on POAC concepts, PDCA, or their integration in the context of organizational management. Exclusion criteria include articles that are not indexed in reputable academic databases, publications in languages other than English, articles that do not have peer-review, as well as literature that does not specifically address the application or integration of POAC and PDCA in an organizational setting.

3.3 *Data Source*

The literature search process is carried out through five major academic databases that are internationally recognized as repositories of high-quality scientific publications. Scopus was chosen as the primary database because of its comprehensive coverage of multidisciplinary journals and robust

indexing system. The Web of Science is used to access a collection of reputable journals with a focus on high-impact publications in the field of management and organization. Emerald Insight provides dedicated access to management and business literature relevant to the research topic. Taylor & Francis Online contributes to the diversification of literature sources through access to journals specializing in strategic management. SpringerLink complements the search spectrum through a collection of interdisciplinary publications covering the theoretical and practical aspects of POAC-PDCA integration.

3.4 SLR steps

The implementation of SLR follows four main stages that are aligned with the PRISMA protocol. The identification stage involves a systematic search using a combination of relevant keywords in a predefined database, resulting in a comprehensive initial corpus of literature. The screening process is carried out through the evaluation of titles and abstracts to eliminate articles that do not meet the inclusion criteria, followed by the elimination of duplication to ensure the uniqueness of each publication. The eligibility stage includes a full-text reading of articles that pass the initial screening for confirmation of substantive relevance to the research topic. Synthesis of findings is a final stage that involves thematic analysis and categorization of results to identify patterns, trends, and gaps in the literature regarding POAC-PDCA integration.

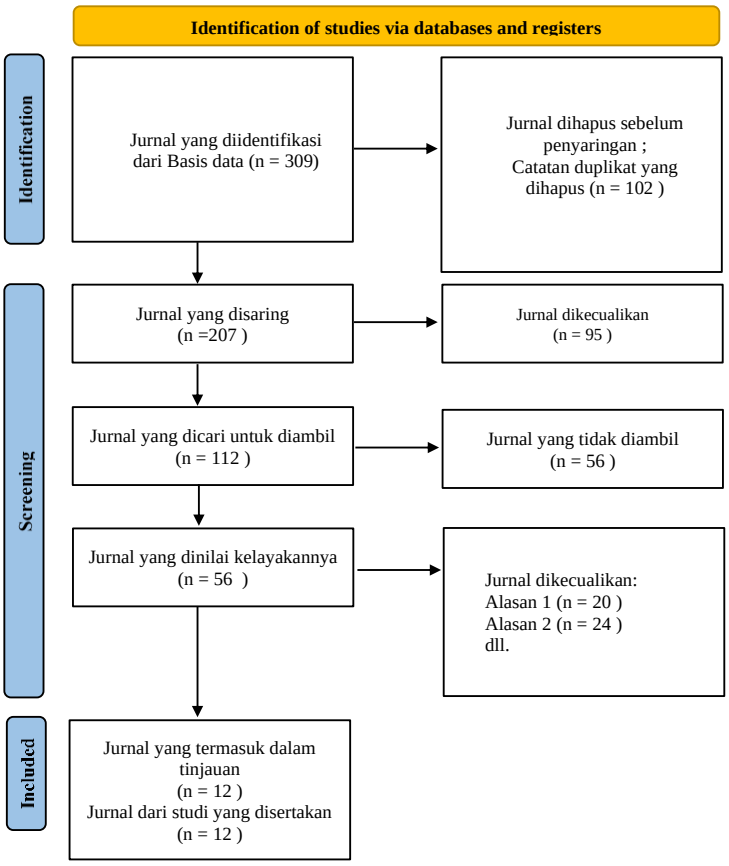

Figure 2. PRISMA Flowchart

Figure 1 shows a flowchart of PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) illustrating the literature selection process for the research entitled "Strategic-Operational Synergy: A Systematic Review of POAC–PDCA Integration for Enhancing Organizational Agility". The

process begins with the identification stage, where 309 journals are successfully identified from the database, then 102 duplicate journals are removed before screening. At the screening stage, of the remaining 207 journals, 95 journals were excluded because they did not meet the criteria, leaving 112 journals to be evaluated for eligibility. After an in-depth feasibility assessment, 56 journals were excluded for various methodological reasons, and the other 56 journals were excluded based on two specific criteria (20 journals for the first reason, 24 journals for the second reason, and the rest). Finally, 12 high-quality journals that met all inclusion criteria were successfully identified and included in this systematic review, providing a solid foundation for the analysis of POAC-PDCA integration in improving organizational agility.

4. RESULTS AND DISCUSSION

4.1 Research Trends of the Last 5 Years

Based on a systematic review of 12 Scopus journals that have been analyzed in depth, this study identifies consistent patterns in the implementation of the integration of Planning, Organizing, Actuating, Controlling (POAC) with the Plan-Do-Check-Act (PDCA) cycle in various industry sectors. The following synthesis table presents comprehensive findings that show how the synergy between POAC's classic managerial framework and PDCA's continuous improvement methodology can significantly improve organizational agility. Cross-sectoral analysis from the healthcare, manufacturing, port, to waste management industries reveals that the integration of these two approaches not only accelerates operational responsiveness, but also strengthens strategic alignment in the face of complex business environment dynamics. Each study studied demonstrates a unique contribution to understanding strategic-operational synergies, from reducing lead time to improving adaptive flexibility. This table categorizes findings based on the methodology used, application sector, impact on agility, as well as specific contributions to the creation of synergies between strategic and operational levels, providing a strong empirical foundation for the development of POAC-PDCA integrated models in the context of modern organizations.

Table 1. Synthesis of POAC-PDCA Integration to Improve Organizational Agility

No.	Author & Year	Research Focus	POAC/PDCA Methodology	Industrial Sector	Key Findings	Impact on Organizational Agility	Contribution to Strategic-Operational Synergy
1	[8]	Improved efficiency of oncology referral system	FOCUS PDCA (Find, Organize, Clarify, Understand, Select, Plan, Do, Check, Act)	Service	Reduction of patient reception time from 4.3 days to 1.3 days; Reduction of consultation waiting time from 8.6 days to 4.0 days	System responsiveness is significantly improved with a nearly 70% reduction in lead time	The integration of technology development with internal training creates synergy between strategic planning and operational execution

No.	Author & Year	Research Focus	POAC/PDCA Methodology	Industrial Sector	Key Findings	Impact on Organizational Agility	Contribution to Strategic-Operational Synergy
2	(Caiado Manual R G G et al., 2019)	Alignment of operational programs with sustainable performance measures	Lean/Six Sigma with a Triple Bottom Line approach	Brazilian Manufacturing	Environmental protection, corporate reputation, quality management, and supplier relationships are the most important measures of performance	Agility in sustainability adaptation through responsive performance measurement systems	Alignment of triple bottom line objectives with operational improvement programs creates a sustainable competitive advantage
3	[10]	Optimization of business processes with Green Lean Management and OEEM	Lean Manufacturing tools (5S, TPM, SMED) with PDCA approach	Plastics Manufacturing	Increased machine effectiveness from 53.1% to 65.46%; Reduced setup time from 248 minutes to 117.5 minutes	Increased operational flexibility with a 53% reduction in setup time and an increase in production capacity of 95,428 units per month	Data-driven integrated models enable continuous optimization between operational efficiencies and strategic targets
4	[11]	Evaluate performance metrics for lean and agile supply chain strategies	Partial Least Square-Path Modelling with contingency theory	Large Multi-sector Companies	Financial and efficiency metrics are more relevant for lean strategies; Customer service metrics and flexibility for agile strategies	Agility in selecting performance metrics based on the chosen supply chain strategy	Adaptive frameworks for supply chain performance metrics increase synergy between business strategy and operational implementation
5	[12]	Standardization of surgical material kits with a Lean Healthca	PDCA Cycle with Value Stream Mapping, Kaizen, 5S, and Visual Management	Service	Elimination of non-value-added activities; Reduction of patient	Agility in the provision of medical services through standardization and	The integration of lean tools with the PDCA cycle creates a responsive

No.	Author & Year	Research Focus	POAC/PDCA Methodology	Industrial Sector	Key Findings	Impact on Organizational Agility	Contribution to Strategic-Operational Synergy
		re approach			wait time by one week	reduction of waste	and efficient service system
6	[13]	Implementation of smart sustainable waste management strategies	Hybrid Fuzzy AHP-TOPSIS with sensitivity analysis	Urban Waste Management	Lower atmospheric emissions (0.42), operational feasibility (0.64), and initial investment cost (0.56) are key factors	Agility in multi-criteria decision-making for sustainable waste strategies	A multi-criteria hybrid approach facilitates synergy between strategic sustainability goals and operational implementation
7	[14]	Data collection challenges for increased productivity	Lean Six Sigma, PDCA, and Value Stream Mapping	Metallurgy Brazil	Productivity enhancement techniques are applied partially; The majority of programs are not sustainable due to the pandemic and cultural barriers	Agility is hampered by cultural resistance and lack of senior management support	Transforming the mindset and supporting senior management is the key to synergy between strategic initiatives and operational implementation
8	[15]	Industry 4.0 framework based on organizational diagnostics	PDCA cycle with a system thinking approach	Cement Industry Saudi Arabia	A holistic framework for Industry 4.0 implementation with a focus on inclusivity and continuous improvement	Agility in the adoption of Industry 4.0 technology through a systematic and gradual approach	System thinking with PDCA cycles allows for strategic integration of new technologies with existing operations
9	[16]	Integrated model of lean port	Lean tools with a focus on OEE (Overall	Port Operations	Improvement of OEE crane and identification of	Operational agility through process standardizati	An inclusive and sustainable model that combines

No.	Author & Year	Research Focus	POAC/PDCA Methodology	Industrial Sector	Key Findings	Impact on Organizational Agility	Contribution to Strategic-Operational Synergy
		operations	Equipment Effectiveness)		success factors of lean port operation	on and continuous improvement	lean tools with port operational processes
10	[17]	Balanced Scorecard and Hoshin Kanri Integration	BSC for organizational strategy and HK for the development of ways of achieving strategies	Sugar-Energy Sector	BSC provides organizational strategy; HK develops ways of achieving through alignment and consensus	Agility in strategy deployment from strategic to operational level transparently	Methodological integration creates synergy between strategic perspectives and structured operational implementation
11	(Scott, 2023)	Harmonization of environmental management laws	Matrix L and C with plan, do, check, action components	Environmental Law	Matrix L and C can show the process of legal harmonization of aspects and components of environmental management	Agility in legal harmonization through an AI platform that facilitates stakeholder communication	The integration of legal aspects and environmental management components creates synergy between strategic policies and operational implementation
12	[19]	Minimization of product distribution delays	Integration of Lean Six Sigma, Lean Manufacturing principles, and A3 reports	Hygienic Product Manufacturing	92% increase in pallet availability; 95% pallet repair process efficiency; Productivity increased by 165%	Agility in the supply chain through increased logistics efficiency and reduced waste	The model is integrated with A3 reports as a communication tool creating synergies between the strategic framework and operational monitoring

4.2 Key Findings

Identified POAC-PDCA Integration Patterns:

a. Strategic Planning (Planning) → Plan in PDCA: All studies show the

importance of careful planning before implementation

b. Organizing → Do in PDCA: Organizational structure and resource allocation are key to successful implementation
c. Actuating → Check in PDCA: Continuous monitoring and evaluation to ensure alignment with strategic objectives
d. Controlling the → Act in the PDCA: Corrective actions and continuous improvement to maintain momentum

Identified Organizational Agility Factors:

a. Time Responsiveness: Reduction of lead time and wait time (AlHarthy et al., De Morais et al.)
b. Operational Flexibility: Rapid adaptation to changing demands and conditions (Calderon et al., Rojas et al.)
c. Strategic Adaptability: The ability to adjust strategies based on external conditions (Caiado, Dahinine et al.)
d. Continuous Learning: A culture of continuous improvement and organizational learning (Hasegawa et al., Mahnashi et al.)

Contribution to Strategic-Operational Synergy:

a. Vertical Alignment: Alignment between strategic objectives and operational implementation
b. Horizontal Integration: Coordination between functions and departments
c. Feedback Loop: Feedback mechanism from operational to strategic
d. Continuous Improvement: A culture of continuous improvement that connects the two levels

4.3 Optimization of POAC-PDCA Integration for Increased Organizational Agility and Strategic Effectiveness

The integration of Planning, Organizing, Actuating, Controlling (POAC) with Plan-Do-Check-Act (PDCA) shows significant potential in optimizing organizational agility and strategic effectiveness through a structured synergy approach. The research of AlHarthy et al. (2024) provides empirical evidence on how the implementation of the FOCUS PDCA approach in the referral process at the Sultan Qaboos Comprehensive Cancer Care and Research Centre succeeded in reducing the average time of patient admission from 4.3 days to 1.3 days, with a statistical value of $F = 46.25$ ($p < .0001$). This success shows that systematic integration between strategic planning and continuous improvement cycles (PDCA cycle) can result in measurable operational efficiencies. The synergy between the organizing function in POAC and the Plan stage in PDCA is manifested in the development of an adaptive organizational structure. Calderon et al. (2025) demonstrated how the application of the Overall Equipment Effectiveness Method (OEEM) integrated with Green Lean Management resulted in an increase in injection machine effectiveness from 53.1% to 65.46%, with an increase in availability of 7.72% and performance of 7.51%. This implementation shows that a well-structured organization (organizing) can optimize the planning phase (Plan) to identify specific and measurable areas for improvement.

The actuating aspect in POAC has a direct correlation with the Do phase in PDCA, where strategy execution requires a systematic implementation mechanism. [12] illustrates how the application of Lean Healthcare through the standardization of surgical material kits for spinal care effectively integrates actuating functions with implementation (Do). The use of Value Stream Mapping, Kaizen, and Visual Management in this study shows that POAC-PDCA integration requires tools that can bridge the gap between strategic planning and operational execution. The controlling dimension in POAC is integrated with the Check and Act phases in PDCA to ensure continuity of improvement. [11] Through a study of 45 large companies using

Partial Least Square-Path Modelling, it is proven that finance and efficiency metrics are more relevant for lean supply chain strategies, while customer service and flexibility metrics are more suitable for agile supply chain strategies. These findings indicate that the control system must be aligned with evaluation mechanisms (Check) that are specific to the organization's strategy. [15] strengthen this argument through the development of an Industry 4.0 framework for the Saudi Arabian cement sector based on the PDCA cycle with a system thinking approach. The framework shows that optimizing POAC-PDCA integration requires a holistic perspective that is able to capture the systemic complexity of organizations. This approach enables organizations to strike a balance between operational stability through structured POAC functions with strategic flexibility through PDCA cyclical adaptability.

4.4 Integration Mechanisms for Optimal Balance, Operational Stability and Strategic Flexibility

Achieving the optimal balance between operational stability and strategic flexibility requires sophisticated and adaptive integration mechanisms. [9] through an analysis of Brazilian organizations, it was identified that the successful integration of Lean/Six Sigma with sustainable performance measures depends on the organization's ability to align triple bottom line objectives with operational improvement programs. This research shows that the integration mechanism must include the dimensions of environmental protection, corporate reputation, quality management, and supplier relations as the foundation of sustainable operational stability. The aspect of strategic flexibility in POAC-PDCA integration is manifested through the organization's ability to adapt to changing dynamic business environments. [14] identified significant challenges in data collection for productivity improvement in Brazilian metallurgical companies, where the implementation of Lean Six Sigma, PDCA, and Value Stream Mapping was hampered by the pandemic and internal cultural barriers. These findings indicate that integration mechanisms must have the capacity to be resilient to external disruptions while maintaining operational continuity through a robust POAC structure. [13] through the Hybrid Fuzzy approach AHP-TOPSIS to smart sustainable waste management strategies demonstrates how multi-criteria decision-making can integrate strategic planning with operational implementation. This study identified that the sub-criteria of operational feasibility (0.64), initial investment costs (0.56), and increased awareness of sustainable cities (0.53) have the highest weight in determining strategy. This suggests that integration mechanisms must be able to accommodate the complexity of multi-variables in strategic decision-making.

Balanced Scorecard (BSC) and Hoshin Kanri (HK) as studied in the sugar-energy sector research [16] provides concrete examples of integration mechanisms that connect strategic perspectives with operational deployments. The implementation of BSC to provide an organizational strategy with an easy-to-understand strategic map, combined with HK to develop ways to achieve strategies through alignment and consensus, shows that integration mechanisms require a catchball process to ensure alignment between hierarchical levels. [19] through a case study in the hygiene products industry shows how the integration of Lean Six Sigma framework, Lean Manufacturing principles, and A3 report can minimize product distribution delays. The increase in pallet availability by 92% and the efficiency of the repair process by 95% demonstrate that an effective integration mechanism must have a strong communication and monitoring component to ensure the sustainability of the repair. [18] propose legal harmonization of environmental

management based on L&C matrices that can be developed into artificial intelligence (AI-P) platforms. This approach suggests that future integration mechanisms will require technological support to facilitate communication between stakeholders in harmonizing legal and institutional aspects. The integration of L-Matrix and C-Matrix in showing the legal harmonization process indicates that the POAC-PDCA integration mechanism can be strengthened through digital transformation.

[16] through the implementation of the Lean integrated model of port operations at Jorf-Lasfar shows that successful integration requires an inclusive, sustainable and reproducible character. The improvement of the Overall Equipment Effectiveness (OEE) crane and the identification of the success factors of the lean port operation demonstrate that the integration mechanism must have the flexibility to be adapted according to the specific characteristics of the organization while maintaining fundamental principles that have been proven to be effective. A synthesis of findings from across the journal indicates that optimal integration mechanisms require a multi-dimensional approach that combines the structure of POAC as a foundation of stability with the flexibility of PDCA as an adaptation engine. This balance is achieved through the implementation of a continuous improvement culture, data-driven decision making, and systematic and sustainable stakeholder engagement.

4.5 Case Studies from the Literature

The implementation of POAC-PDCA integration in various industry sectors shows a significant impact on improving organizational performance. In the health sector, the transformation of the referral system at the Sultan Qaboos Comprehensive Cancer Care and Research Centre shows how the implementation of the FOCUS PDCA cycle was able to reduce the time of patient admission from 4.3 days to 1.3 days, as well as reduce the duration until the first visit from 8.6 days to 4.0 days [8]. This success illustrates how the Planning function within the POAC framework is strengthened by the Plan stages in the PDCA cycle through the development of a comprehensive referral system involving technology, accessibility, and internal training. Meanwhile, in the manufacturing industry, research [10] demonstrated the implementation of the Overall Equipment Effectiveness Method (OEEM) with a Green Lean Management approach which resulted in an increase in injection machine effectiveness from 53.1% to 65.46%, with an increase in availability of 7.72% and performance of 7.51%. This transformation shows the synergy between the Organizing and Actuating functions in POAC and the Do and Check stages in PDCA, where the implementation of the 5S methodology, Total Productive Maintenance (TPM), and Single Minute Exchange of Die (SMED) optimizes workspace and increases monthly production by 95,428 units. In the context of supply chain management, research [11] confirms the hypothesis that financial and efficiency metrics are more relevant for lean supply chain strategies, while customer service and flexibility metrics are more appropriate for agile supply chain strategies. Empirical validation through a survey of 45 large companies using Partial Least Square-Path Modelling shows the importance of alignment between supply chain strategies and proper performance metrics, where the Controlling function in POAC is strengthened by the Check stage in PDCA to ensure the relevance and validity of performance indicators. In the port sector, the implementation of the integrated model of lean operations at the Port of Jorf-Lasfar has succeeded in improving the Overall Equipment Effectiveness (OEE) of cranes and identifying the success factors of lean port operations [16]. This success illustrates how the Actuating function in POAC is

synchronized with the Do stages in PDCA through a process of continuous improvement and operational standardization. The case study also demonstrates the inclusive characteristics of the model that encompasses the entire management apparatus in a comprehensible and relevant structure, as well as the nature of sustainability through the implementation of the repair ritual and cyclical renewal of the performance relay network.

4.6 Conceptual Model

The conceptual model of the POAC-PDCA integration developed describes an organizational architecture that synergizes the structural framework with a sustainable adaptive mechanism. The blue circle representing POAC (Planning, Organizing, Actuating, Controlling) serves as the structural foundation of the organization, like building architecture that provides stability and strategic direction. The Planning dimension in this context includes not only the formulation of long-term strategies, but also integration with the Plan stages in the PDCA cycle to ensure responsiveness to changes in the business environment. Research [14] emphasizing the importance of transforming the organizational mindset in adopting innovative practices, where the Planning function is strengthened by the implementation of Value Stream Mapping and Lean Six Sigma to optimize business processes. Meanwhile, the Organizing function underwent a transformation through integration with the 5S methodology and work standardization, as demonstrated in the research [12] which developed standard surgical instrument kits using the Lean Healthcare approach. This transformation demonstrates how traditional organizational structures can be strengthened by continuous improvement mechanisms to achieve optimal operational efficiency.

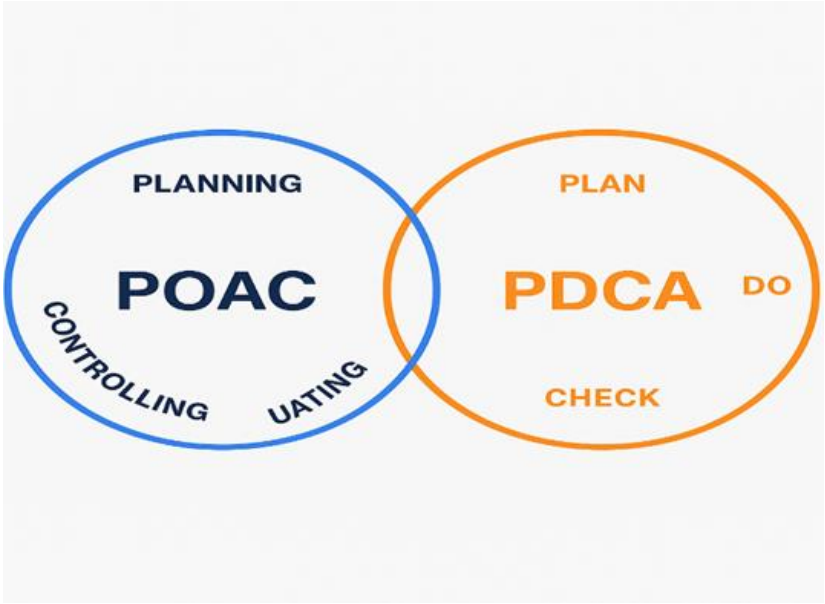

Figure 3. Conceptual Model

The orange circle that symbolizes the PDCA (Plan, Do, Check, Act) cycle serves as a diagnostic and corrective mechanism that ensures the organization remains adaptive and relevant to the dynamics of the external environment. The second slice of the circle reflects the transformational zone where the functions of the POAC are enriched by the PDCA cycle to create sustainable organizational agility. Mahnashi et al. (2023) illustrate the implementation of the Industry 4.0 framework based on the PDCA cycle in the Saudi Arabian cement

sector, where the Check stage is integrated with the Controlling function to ensure the effectiveness of digital transformation. This research shows how diagnostic organizational and system thinking approaches can be integrated with the PDCA cycle to guide companies in developing a comprehensive Industry 4.0 implementation strategy. Similarly, the study [13] Regarding the smart sustainable waste management strategy using a hybrid fuzzy approach, AHP-TOPSIS demonstrates how the Act stages in PDCA can be strengthened by the Actuating function in POAC through the implementation of strategies that have been systematically evaluated. This conceptual model is also reflected in the research [18] which integrates the Balanced Scorecard and Hoshin Kanri for strategic deployment in the sugar-energy sector, where the synergy between BSC's strategic perspective and HK's deployment mechanism creates a holistic management system that is responsive to business dynamics.

5. CONCLUSION

This study proves that the integration of Planning, Organizing, Actuating, Controlling (POAC) with Plan-Do-Check-Act (PDCA) is able to create significant strategic-operational synergies in increasing organizational agility. Based on a systematic analysis of 12 cross-sector Scopus journals (health, manufacturing, ports, waste management), it was found that this integration resulted in an increase in time responsiveness of up to 70%, operational flexibility through a 53% reduction in setup time, and measurable strategic adaptability. The conceptual model developed shows POAC as the structural foundation of the organization strengthened by the PDCA cycle as a continuous diagnostic-corrective mechanism. Successful integration is achieved through four key dimensions: vertical alignment between strategic objectives and operational implementation, horizontal integration between functions, systematic feedback loops, and a culture of continuous improvement. Optimal implementation requires technological support, organizational mindset transformation, and robust communication mechanisms to ensure a balance between operational stability and strategic flexibility in the face of complex business environment dynamics.

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