

The Influence of Plan–Do–Check–Act Cycle Toward Program Sustainability in Advancing Continuous Improvement Among Village Officials in Garut Regency

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ABSTRACT

The sustainability of village government programs is essential for achieving effective local governance and supporting the Sustainable Development Goals (SDGs). Continuous improvement practices, particularly the Plan–Do–Check–Act (PDCA) cycle, have been widely recognized as mechanisms for enhancing organizational performance; however, their influence on program sustainability in village public administration remains underexplored. This study investigates the influence of the PDCA cycle on program sustainability among village officials in Garut Regency, Indonesia. A quantitative explanatory design was employed using a pilot survey of 55 village officials. Data were collected through a structured questionnaire measuring the four dimensions of the PDCA cycle and the eight dimensions of program sustainability adapted from the Program Sustainability Assessment Tool (PSAT). The data were analyzed using descriptive statistics, Pearson correlation, and simple linear regression in IBM SPSS Statistics 26. The results reveal that the PDCA cycle has a significant positive influence on all dimensions of program sustainability, including political support, funding stability, partnerships, organizational capacity, program evaluation, program adaptation, communications, and strategic planning (all $p < .001$). The strongest effects were observed on funding stability and strategic planning. These findings demonstrate that systematic implementation of the PDCA cycle strengthens organizational capacities required to sustain village development programs. The study contributes to the literature by extending the application of 1 sector organizations to adopt management approaches that support continuous organizational improvement and long-term program sustainability (Taraza et al., 2023). Public institutions are increasingly expected not only to achieve immediate performance targets but also to ensure that public programs remain effective, adaptable, and capable of generating enduring benefits for society (Neo et al., 2023). These expectations are reflected in the United Nations Sustainable Development Goals (SDGs), particularly SDG 16, which promotes effective, accountable, and inclusive institutions at all levels (Kohsaka & Rogel, 2021). Strong

local governance is also recognized as a key enabler for achieving broader development objectives, including sustainable cities and communities (SDG 11) and multi-stakeholder partnerships (SDG 17). Accordingly, strengthening the sustainability capacity of local government institutions has become an important priority for advancing sustainable development (Mao et al., 2024).

Village governments play a strategic role in achieving these national and global development agendas because they represent the closest level of government to local communities. Village officials are responsible for implementing development initiatives, managing public resources, facilitating community participation, and providing essential administrative services (Ardiputra et al., 2025). Their responsibilities therefore extend beyond routine administrative functions to ensuring that development programs continue to deliver benefits over time. Sustainable village governance depends on organizational capabilities such as maintaining political support, securing stable financial resources, building productive partnerships,

strengthening institutional capacity, conducting regular evaluations, adapting to changing conditions, communicating effectively with stakeholders, and implementing long-term strategic planning (Handayani et al., 2023).

In Indonesia, village governance has undergone significant institutional reform following the enactment of Law No. 6 of 2014 concerning Villages, which expanded administrative authority and financial autonomy at the village level (Ardiputra et al., 2025). The introduction of village funds, digital governance initiatives, and performance-oriented public administration has considerably increased the responsibilities of village officials while raising expectations for transparency, accountability, and service quality. Despite these reforms, many village governments continue to face challenges related to inconsistent administrative procedures, limited managerial competence, inadequate monitoring and evaluation, weak coordination among stakeholders, and uneven organizational capacity (Pudjono et al., 2026). Such conditions often hinder the long-term sustainability of development programs, highlighting the need for management approaches that promote continuous learning and organizational improvement rather than simple compliance with administrative regulations.

The importance of sustainable village governance is particularly evident in West Java Province. According to Statistics Indonesia (BPS, 2019), West Java recorded the highest realization of village government expenditure among all provinces in Indonesia. This substantial fiscal investment demonstrates the government's commitment to accelerating rural development while simultaneously increasing public expectations for better governance, infrastructure, and public services. However, financial resources alone cannot guarantee sustainable development outcomes. The long-term success of village programs largely depends on the organizational capacity of village governments to manage resources effectively, monitor program implementation, evaluate performance, and respond to changing community needs.

Recent data from the West Java Community and Village Empowerment Agency (Dinas Pemberdayaan Masyarakat dan Desa Jawa Barat, 2025) reveal that disparities in village development remain across the province. Although the number of underdeveloped villages has been substantially reduced, considerable differences persist between northern and southern regions, with southern West Java still containing a larger proportion of developing villages. These disparities indicate that increased public investment has not yet resulted in equally sustainable governance capacity throughout the province. Consequently, sustainable village development requires not only adequate funding but also organizational systems capable of maintaining effective programs over time. The spatial distribution of village development status in West Java is illustrated in

Figure 1.

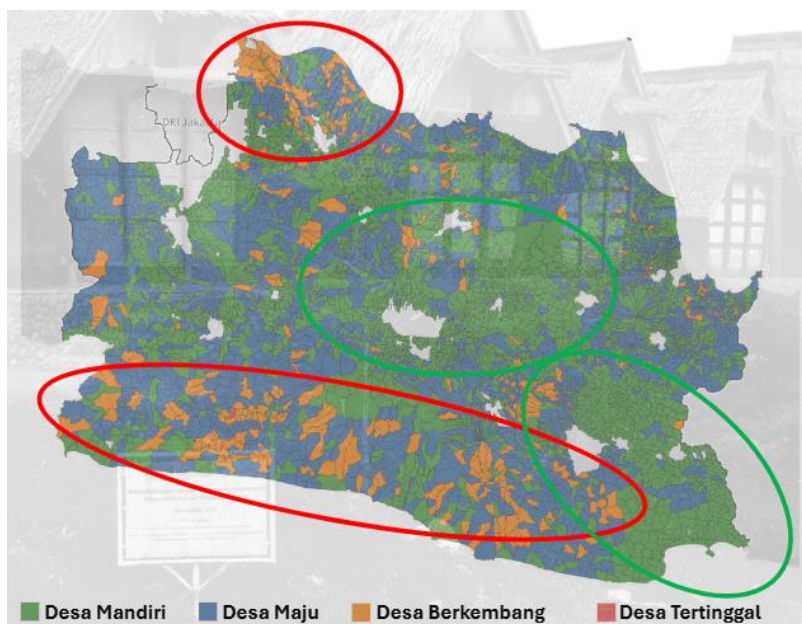


Figure 1. Village development status in West Java

Among the districts in southern West Java, Garut Regency provides a particularly relevant setting for investigating sustainable village governance. Together with Cianjur and Sukabumi Regencies, Garut contains one of the largest concentrations of developing villages and records the highest number of underdeveloped villages in the province. This situation suggests that development challenges are influenced not only by financial limitations but also by organizational capability, institutional management, and the capacity to sustain development programs. Therefore, Garut Regency offers an appropriate context for examining management approaches that strengthen program sustainability through continuous organizational improvement.

Previous public administration studies conducted in Garut Regency have identified several factors that support sustainable village governance. From a technological perspective, Aulawi and Fitriani (2020) developed an information system to improve governmental operations, demonstrating the regency's commitment to enhancing public service delivery through digital innovation. Similarly, Mulyaningsih (2025) reported that the commitment of village officials and active community participation strengthen village governance rooted in local wisdom, emphasizing the importance of collaborative governance in sustaining development initiatives. Together, these studies indicate that Garut Regency possesses organizational and social characteristics suitable for examining mechanisms that reinforce program sustainability.

Program sustainability has become an increasingly important concept in public administration because it focuses on an organization's ability to maintain effective interventions, institutionalize successful practices, and continue generating public value despite changes in political, financial, or organizational environments (Scheirer, 2005). Rather than concentrating solely on the completion of individual projects, program sustainability emphasizes the organizational capacities required to preserve program benefits, maintain stakeholder commitment, secure long-term resources, and continuously improve organizational practices.

Developing program sustainability requires organizations to adopt the principles of Continuous Improvement (CI). CI refers to a systematic and ongoing effort to improve organizational processes, services, and performance through continuous learning, evaluation, and adaptation (Bessant, 1998). Instead of viewing improvement as a series of isolated initiatives, CI promotes an organizational culture in which problems are continuously identified, corrective actions are implemented, results are evaluated, and successful practices are institutionalized (Pérez-Rave et al., 2023). Such an approach enables organizations to respond more effectively to evolving stakeholder expectations and environmental changes (Ahmed et al., 1999).

Among the various approaches to implementing CI, the Plan–Do–Check–Act (PDCA) cycle remains one of the most widely recognized. Developed by Shewhart and later popularized by Deming, the PDCA cycle offers an iterative framework consisting of planning improvements, implementing actions, evaluating outcomes, and standardizing successful practices (Saier, 2017). Through repeated learning cycles, organizations can strengthen organizational learning, improve managerial decision-making, reduce operational uncertainty, and continuously enhance organizational performance (Singh & Singh, 2015). Beyond improving operational efficiency, PDCA also contributes to organizational resilience by encouraging evidence-based adaptation and continuous refinement of administrative processes.

Despite growing scholarly interest in CI and program sustainability, empirical research examining the influence of PDCA on program sustainability in village governments remains limited. Existing studies have largely concentrated on manufacturing organizations (Ivanović & Majstorović, 2006), healthcare (Mosadeghrad, 2015), educational institutions (Chen, 2012), and large public organizations (Trippner-Hrabi et al., 2024), while village administrations have received comparatively little attention. Because village governments operate with decentralized governance structures, limited administrative resources, close interaction with local communities, and varying institutional capacities (Devas & Grant, 2003), they provide a unique setting for investigating how CI practices contribute to sustainable public programs.

Based on these considerations, this study investigates the influence of the Plan–Do–Check–Act (PDCA) cycle on program sustainability among village officials in Garut Regency. By linking the concepts of CI and sustainability capacity, this study seeks to expand the public administration literature while supporting the achievement of SDG 16 through strengthening effective, accountable, and sustainable local institutions. The findings are also expected to provide practical recommendations for improving the long-term sustainability

of village development programs and reinforcing the institutional capacity of village governments in Indonesia.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

PDCA cycle is a widely adopted framework for implementing CI in organizations. Originally developed by Shewhart and later popularized by Deming, PDCA consists of four iterative stages: planning improvements, implementing actions, evaluating outcomes, and taking corrective actions to standardize successful practices (Saier, 2017; Singh & Singh, 2015). Rather than serving as a one-time management tool, PDCA promotes continuous organizational learning through repeated cycles of planning, implementation, evaluation, and refinement.

In the public sector, PDCA has been applied to improve governance quality, organizational effectiveness, accountability, and public service delivery. Its systematic approach enables public organizations to identify performance gaps, implement evidence-based improvements, and respond to changing stakeholder expectations (Nulmunir, Mutaqin, Akbar, et al., 2026). Accordingly, PDCA provides an appropriate managerial framework for strengthening organizational performance in village governments

Program sustainability refers to an organization's capacity to maintain programs and their intended benefits over time despite changes in political, financial, or organizational environments (Scheirer, 2005). Beyond achieving short-term outcomes, sustainability emphasizes the institutionalization of effective practices and the continuous generation of public value through adaptive management (Pongsakornrungrsilp et al., 2026).

Luke et al. (2014) operationalized program sustainability through the Program Sustainability Assessment Tool (PSAT), which comprises eight organizational dimensions: political support, funding stability, partnerships, organizational capacity, program evaluation, program adaptation, communications, and strategic planning. Although initially developed for public health programs, the framework closely reflects the context of general public administration settings.

The relationship between PDCA and program sustainability is grounded in the principles of CI and organizational learning. Through systematic planning, implementation, evaluation, and corrective action, PDCA enables organizations to improve decision-making, strengthen organizational capacity, and adapt to changing internal and external conditions (Singh & Singh, 2015). These iterative processes reinforce the organizational capabilities necessary to sustain programs over the long term.

The implementation of the PDCA cycle is expected to strengthen political support by improving organizational accountability, transparency, and stakeholder confidence. Through systematic planning, regular monitoring, and continuous evaluation, the government can demonstrate measurable program outcomes and build trust among policymakers, community leaders, and other stakeholders (Pudjono et al., 2026). These practices increase the legitimacy of public programs and encourage sustained institutional commitment. Therefore, the following hypothesis is proposed:

H1: The Plan–Do–Check–Act (PDCA) cycle positively influences political support.

Political commitment alone, is insufficient to sustain public programs without adequate financial resources. The planning and evaluation processes embedded within the PDCA cycle support effective budgeting, resource allocation, and financial accountability. Organizations that consistently evaluate program performance are better positioned to justify resource utilization and secure continued financial support (Ewell, 1999). Accordingly, the following hypothesis is formulated:

H2: The Plan–Do–Check–Act (PDCA) cycle positively influences funding stability.

Beyond financial sustainability, effective program implementation also depends on collaboration among multiple stakeholders (Bryson et al., 2006). The iterative nature of PDCA encourages continuous communication, stakeholder engagement, and shared problem-solving throughout program implementation. Such collaborative processes strengthen relationships between village governments, community

organizations, and external institutions, thereby enhancing partnership development (Panday, 2018). Therefore, the following hypothesis is proposed:

H3: The Plan–Do–Check–Act (PDCA) cycle positively influences partnerships.

Strong partnerships may contribute to the development of internal organizational capabilities (Liu, 2021). Continuous planning, implementation, monitoring, and corrective actions encourage organizational learning, improve managerial practices, and optimize the utilization of human and institutional resources (Lima et al., 2025). These improvements enhance the capacity of village administrations to implement and sustain development programs effectively. Thus, the following hypothesis is advanced:

H4: The Plan–Do–Check–Act (PDCA) cycle positively influences organizational capacity.

Organizational capacity is closely associated with the ability to evaluate program performance (Bourgeois & Cousins, 2013). Since the "Check" stage constitutes a core component of the PDCA cycle, organizations implementing PDCA are expected to establish systematic monitoring and evaluation mechanisms. Regular performance assessment provides evidence for managerial decision-making and supports continuous organizational improvement (Schultz, 2015). Therefore, the following hypothesis is proposed:

H5: The Plan–Do–Check–Act (PDCA) cycle positively influences program evaluation.

The information generated through evaluation subsequently enables organizations to adapt to changing conditions (Choo, 1996). The iterative nature of PDCA promotes evidence-based decision-making, allowing organizations to modify strategies, improve operational practices, and respond proactively to environmental changes, stakeholder expectations, and policy developments. Consequently, organizations practicing PDCA are expected to demonstrate greater adaptive capacity. Accordingly, the following hypothesis is formulated:

H6: The Plan–Do–Check–Act (PDCA) cycle positively influences program adaptation.

Successful organizational adaptation also depends on effective communication (Dervitsiotis, 2006). Throughout each phase of the PDCA cycle, communication facilitates coordination, disseminates organizational objectives, reports performance outcomes, and strengthens stakeholder engagement. Transparent communication enhances public trust while reinforcing support for ongoing improvement initiatives (Cucciniello & Nasi, 2014). Therefore, the following hypothesis is proposed:

H7: The Plan–Do–Check–Act (PDCA) cycle positively influences communications.

Finally, continuous learning generated through planning, implementation, evaluation, and adaptation provides valuable input for long-term organizational decision-making (Beer et al., 2005). Organizations implementing PDCA may better identify future priorities, anticipate challenges, and integrate lessons learned into strategic objectives (Rajagopalan, 2021). Consequently, the PDCA cycle is expected to strengthen strategic planning by promoting evidence-based and forward-looking management practices. Thus, the final hypothesis is proposed:

H8: The Plan–Do–Check–Act (PDCA) cycle positively influences strategic planning.

Collectively, these hypotheses reflect the proposition that the PDCA cycle serves as a fundamental mechanism for enhancing organizational sustainability within village governments. By fostering CI across political, financial, organizational, managerial, and strategic dimensions, PDCA is expected to strengthen the sustainability capacity of village administrations and support the long-term effectiveness of village development programs.

METHOD

This study employed a quantitative explanatory research design to examine the influence of the Plan–Do–Check–Act (PDCA) cycle on program sustainability among village officials in Garut Regency, Indonesia. The explanatory approach was selected to test the proposed causal relationships between the PDCA cycle and

the eight dimensions of program sustainability. Data were collected using a structured self-administered questionnaire and analyzed using IBM SPSS Statistics version 26.

The study was conducted as a pilot investigation involving village officials from Garut Regency. Since the primary objective was to evaluate the measurement instrument and examine preliminary relationships among the study variables, the sample size was determined based on recommendations for pilot studies rather than statistical representativeness. Methodological literature suggests that pilot studies commonly involve between 30 and 100 participants to assess instrument reliability, validity, and feasibility before a larger-scale investigation (Hertzog, 2008). Primary data were collected through a structured questionnaire consisting of three sections. The first section collected respondents' demographic information. The second section measured the implementation of the PDCA cycle using four dimensions—Plan, Do, Check, and Act—adapted from Zhong et al. (2023). The third section measured program sustainability using the Program Sustainability Assessment Tool (PSAT) developed and validated by Luke et al. (2014). All measurement items were assessed using a five-point Likert scale ranging from 1 ("Strongly Disagree") to 5 ("Strongly Agree"), with higher scores indicating stronger implementation of the corresponding organizational practices. Table 1 details the instrument used for this research.

Table 1. Research Instrument

Variable	Indicator	Questionnaire Item
PDCA Cycle		
Plan	PDCA_P	We identify problems, analyze their root causes, and develop improvement plans before taking action.
Do	PDCA_D	We implement improvement plans according to the established procedures.
Check	PDCA_C	We assess whether the implemented improvements achieve the expected results using objective performance measures.
Act	PDCA_A	We use evaluation results to standardize successful improvements and initiate further corrective actions when necessary.
Program Sustainability		
Political Support	PSU	The village government receives strong support from district authorities, village consultative bodies (BPD), and community leaders in implementing public administration programs.
Funding Stability	FST	The village administration has sufficient and sustainable financial resources to maintain the implementation of public services and administrative activities.
Partnerships	PAR	The village government actively collaborates with community organizations, local institutions, and other stakeholders to improve public administration.
Organizational Capacity	ORC	The village administration possesses adequate human resources, organizational systems, and leadership to effectively deliver public services.
Program Evaluation	PEV	The village government regularly evaluates administrative performance and uses the evaluation results to improve service quality.
Program Adaptation	PAN	The village administration continuously adapts its administrative practices and services in response to changes in regulations, community needs, and technological developments.
Communications	COM	The village government effectively communicates public policies, administrative procedures, and service information to citizens and relevant stakeholders.
Strategic Planning	SPA	The village government has clear long-term strategic plans that guide the sustainable development of village administration and public services.

Data were collected in June 2026 through an online survey platform. The questionnaire was distributed via WhatsApp groups of village officials from Bojong Village (Bungbulang District), Cibunar Village (Tarogong Kidul District), and Mekarsari Village (Selaawi District) in Garut Regency to facilitate respondent participation and improve the efficiency of data collection. Participation in the study was entirely voluntary, and all respondents were assured of confidentiality and anonymity. Although respondents were categorized

according to their village of origin for reporting purposes, the questionnaire did not collect any personally identifiable information, such as names, employee identification numbers, job positions, or contact details. Furthermore, respondents were free to skip any question or withdraw from the study at any time without incurring any consequences.

To test the proposed hypotheses, simple linear regression analysis was employed. The overall PDCA construct, obtained by aggregating the four PDCA dimensions, served as the independent variable. Separate regression models were estimated to examine its influence on each of the eight dimensions of program sustainability: political support, funding stability, partnerships, organizational capacity, program evaluation, program adaptation, communications, and strategic planning. Aggregating the PDCA dimensions into a single predictor reduced model complexity and improved statistical power, which is appropriate for pilot studies with relatively small sample sizes. Model significance was assessed using the F-test, while explanatory power was evaluated using the coefficient of determination (R^2) and adjusted R^2 . Regression coefficients were interpreted using unstandardized coefficients (B), standardized coefficients (β), t-values, and significance levels, with statistical significance established at $p < .05$.

RESULT

Table 2 shows that a total of 55 village officials participated in this pilot study, representing three villages in Garut Regency: Bojong Village (Bungbulang District), Cibunar Village (Tarogong Kidul District), and Mekarsari Village (Selaawi District). The distribution of respondents across locations was relatively balanced, with 19 respondents (34.5%) from Bojong Village, 18 respondents (32.7%) from Cibunar Village, and 18 respondents (32.8%) from Mekarsari Village. In terms of gender, 30 respondents (54.5%) were male and 25 respondents (45.5%) were female.

Table 2. Demographic Characteristics of the Research Participants

Characteristic	Category	Frequency (n = 55)	Percentage (%)
Location (Village)	Bojong Village (Bungbulang District)	19	34.5
	Cibunar Village (Tarogong Kidul District)	18	32.7
	Mekarsari Village (Selaawi District)	18	32.8
Gender	Male	30	54.5
	Female	25	45.5
Age (years)	20–29	19	34.5
	30–39	16	29.1
	40–50	20	36.4
Length of Service (years)	0–4	16	29.1
	5–9	13	23.6
	10–14	9	16.4
	15–19	13	23.6
	20–23	4	7.3

With respect to age, respondents were relatively evenly distributed across the three age groups, although those aged 40–50 years constituted the largest proportion, with 20 respondents (36.4%), followed by those aged 20–29 years (19 respondents, 34.5%) and 30–39 years (16 respondents, 29.1%). Regarding length of service, the largest group consisted of respondents with 0–4 years of service (16 respondents, 29.1%), followed by those with 5–9 years and 15–19 years of service (13 respondents each, 23.6%), 10–14 years of service (9 respondents, 16.4%), and 20–23 years of service (4 respondents, 7.3%). Overall, the demographic characteristics indicate diversity in respondents' geographic locations, age, gender, and work experience, providing an adequate basis for evaluating the preliminary relationship between the PDCA cycle and program sustainability in village government.

Table 3 presents the descriptive statistics for the study variables. The overall PDCA cycle recorded a mean score of 3.31 (SD = 0.78), indicating a moderate to relatively high level of CI practices among village officials. Among the four PDCA dimensions, Act obtained the highest mean ($M = 3.41$, $SD = 0.95$), followed by Check ($M = 3.35$, $SD = 0.81$), Plan ($M = 3.27$, $SD = 0.93$), and Do ($M = 3.22$, $SD = 0.76$).

Table 3. Descriptive Statistics of the Study Variables (N = 95)

Variable	Min	Max	Mean	SD
PDCA Cycle	2.00	5.00	3.31	0.78
Plan	1	5	3.27	0.93
Do	2	5	3.22	0.76
Check	2	5	3.35	0.81
Act	2	5	3.41	0.95
Program Sustainability				
Political Support (PSU)	1	5	3.26	0.98
Funding Stability (FST)	2	5	3.31	0.86
Partnerships (PAR)	2	5	3.46	0.82
Organizational Capacity (ORC)	1	5	3.25	0.88
Program Evaluation (PEV)	1	5	3.25	0.91
Program Adaptation (PAN)	1	5	3.23	0.79
Communications (COM)	2	5	3.36	0.86
Strategic Planning (SPA)	1	5	3.22	0.95

The eight dimensions of program sustainability also exhibited moderate to relatively high mean scores, ranging from 3.22 to 3.46. Partnerships recorded the highest mean ($M = 3.46$, $SD = 0.82$), suggesting that collaboration between village governments and stakeholders was perceived as the strongest sustainability capacity. This was followed by Communications ($M = 3.36$, $SD = 0.86$) and Funding Stability ($M = 3.31$, $SD = 0.86$).

In contrast, Strategic Planning ($M = 3.22$, $SD = 0.95$) and Program Adaptation ($M = 3.23$, $SD = 0.79$) showed comparatively lower mean values, indicating potential areas for organizational improvement. Overall, the descriptive results suggest that both PDCA implementation and program sustainability were perceived positively by respondents, providing an appropriate basis for examining the proposed relationships through regression analysis.

As shown in Table 4, Pearson correlation analysis revealed significant positive relationships between the PDCA cycle and all eight dimensions of program sustainability. Correlation coefficients ranged from 0.730 to 0.832, indicating strong positive associations.

The strongest relationship was observed between the PDCA cycle and Funding Stability ($r = 0.832$), followed by Strategic Planning ($r = 0.820$), Organizational Capacity ($r = 0.811$), and both Political Support and Partnerships ($r = 0.803$). The remaining dimensions also demonstrated strong positive correlations, including Program Adaptation ($r = 0.768$), Communications ($r = 0.757$), and Program Evaluation ($r = 0.730$). These findings provide preliminary evidence supporting the proposed positive relationship between the PDCA cycle and program sustainability.

Table 4. Summary of Regression Results for the Proposed Hypotheses

Hypothesis	B	β	R	R ²	Adjusted R ²	F	<i>p</i>	Decision
H1 (PDCA → PSU)	1.014	0.803	0.803	0.644	0.640	168.246	< .001	Supported
H2 (PDCA → FST)	0.926	0.832	0.832	0.692	0.688	208.749	< .001	Supported
H3 (PDCA → PAR)	0.852	0.803	0.803	0.645	0.642	169.339	< .001	Supported
H4 (PDCA → ORC)	0.914	0.811	0.811	0.657	0.653	178.210	< .001	Supported
H5 (PDCA → PEV)	0.856	0.730	0.730	0.533	0.528	106.014	< .001	Supported
H6	0.783	0.768	0.768	0.590	0.586	133.836	< .001	Supported

(PDCA → PAN)								
H7 (PDCA → COM)	0.841	0.757	0.757	0.573	0.569	124.851	< .001	Supported
H8 (PDCA → SPA)	1.001	0.820	0.820	0.672	0.669	190.925	< .001	Supported

The regression analyses consistently demonstrate that the PDCA cycle significantly influences all eight dimensions of program sustainability (Table 4). Every regression model was statistically significant ($p < .001$), providing empirical support for the proposed conceptual framework. The coefficient of determination (R^2) ranged from 0.533 to 0.692, indicating that the PDCA cycle explained between 53.3% and 69.2% of the variance in the program sustainability dimensions.

Among the eight dimensions, Funding Stability exhibited the strongest relationship with the PDCA cycle ($\beta = 0.832$, $R^2 = 0.692$), suggesting that systematic planning, implementation, monitoring, and CI contribute substantially to maintaining sustainable financial resources for village programs. This was followed by Strategic Planning ($\beta = 0.820$, $R^2 = 0.672$), Organizational Capacity ($\beta = 0.811$, $R^2 = 0.657$), and both Political Support ($\beta = 0.803$, $R^2 = 0.644$) and Partnerships ($\beta = 0.803$, $R^2 = 0.645$). These findings indicate that CI practices not only strengthen internal organizational processes but also enhance stakeholder engagement, institutional support, and long-term strategic direction.

The remaining sustainability dimensions also demonstrated substantial positive effects. The PDCA cycle explained 59.0% of the variance in Program Adaptation ($\beta = 0.768$), 57.3% in Communications ($\beta = 0.757$), and 53.3% in Program Evaluation ($\beta = 0.730$). Although these dimensions exhibited comparatively lower explanatory power than the others, the regression coefficients remained strong and statistically significant, indicating that the iterative nature of the PDCA cycle promotes organizational learning, effective communication, evidence-based evaluation, and adaptive management.

DISCUSSION

The findings demonstrate that the PDCA cycle functions as an important managerial mechanism for strengthening program sustainability within village governments. Rather than influencing only a single organizational outcome, the PDCA cycle contributes to multiple organizational capacities that collectively support the long-term continuity of public programs. This suggests that program sustainability is not solely determined by financial resources or policy support but also by an organization's ability to continuously learn, evaluate, and improve its practices (Siebenhüner & Arnold, 2007).

The positive influence of the PDCA cycle on political support and funding stability indicates that systematic planning, implementation, evaluation, and corrective actions enhance organizational accountability and stakeholder confidence (Adams & McNicholas, 2007). Village governments that consistently apply CI practices are more capable of demonstrating program effectiveness, thereby encouraging sustained political commitment and financial support (Nulmunir, Mutaqin, & others, 2026). Similarly, the positive effects on partnerships and organizational capacity suggest that CI promotes stronger collaboration, clearer organizational processes, and more effective utilization of institutional resources (Pudjono et al., 2026).

The findings also reveal that the PDCA cycle strengthens program evaluation and program adaptation, highlighting the importance of evidence-based decision-making. Regular monitoring and evaluation provide information that enables village governments to identify weaknesses, implement corrective actions, and adapt programs to changing community needs and policy environments (Chapman et al., 2016). This continuous learning process enhances organizational resilience and supports the long-term effectiveness of development initiatives (Ahsan, 2025).

Furthermore, the significant relationships between the PDCA cycle, communications, and strategic planning demonstrate that CI extends beyond operational management to influence long-term governance. Effective communication facilitates coordination among stakeholders and increases transparency (Vian et al., 2017), while strategic planning integrates lessons learned from previous improvement cycles into future

organizational priorities (Rentes et al., 2019). These processes transform CI into an organizational culture rather than a series of isolated managerial activities.

CONCLUSION

The findings demonstrate that the implementation of the PDCA cycle has a significant and positive influence on all eight dimensions of program sustainability, namely political support, funding stability, partnerships, organizational capacity, program evaluation, program adaptation, communications, and strategic planning. The regression analyses indicate that the PDCA cycle consistently explains a substantial proportion of variance across these dimensions, confirming its role as an effective managerial framework for strengthening the long-term sustainability of village government programs.

From a theoretical perspective, this study extends the application of the PDCA framework beyond its traditional use in quality management by demonstrating its contribution to program sustainability within the context of village public administration. Furthermore, the study supports the conceptualization of program sustainability model, showing that CI mechanisms contribute to strengthening the organizational capacities required to sustain public programs over time.

Practically, the findings suggest that village governments should institutionalize the PDCA cycle as a routine management practice rather than employing it only as a problem-solving technique. Integrating the PDCA cycle into village governance may therefore contribute to improving administrative performance while supporting the achievement of the SDGs through more sustainable and resilient local governance.

Several limitations should be acknowledged. First, this research was conducted as a pilot study with a relatively small sample of village officials from a single regency, limiting the generalizability of the findings to other regional contexts. Second, the study employed a cross-sectional survey design, which does not capture changes in organizational sustainability over time. Third, the analysis utilized simple linear regression with an aggregated PDCA construct, preventing examination of the individual contributions of the four PDCA dimensions.

Future studies are encouraged to employ larger and more representative samples across multiple regions to improve the generalizability of the findings. Long term research would also provide a better understanding of how CI practices influence program sustainability over time. Additionally, future research may apply structural equation modeling to examine both the direct and indirect effects of individual PDCA dimensions on program sustainability and explore potential mediating or moderating variables, such as organizational culture, leadership, digital governance, or innovation capability. Such investigations would contribute to a more comprehensive understanding of sustainable governance in village public administration.

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