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Analysis of Obstacles and Strategies for Accelerating Accreditation of Motor Vehicle Testing Units

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Abstract

This study aims to analyze barriers and formulate strategies to accelerate the accreditation of the Nunukan Regency Transportation Agency's Motor Vehicle Inspection Technical Implementation Unit (UPT PKB). Accreditation is a requirement of the Ministry of Transportation to ensure service quality, safety, and compliance with national standards. To date, the Nunukan Regency UPT PKB has not yet obtained accreditation, resulting in weak formal legitimacy and poor quality of public services in the motor vehicle inspection sector. This study used a qualitative method based on case studies. Data were collected through in-depth interviews and field observations, and then analyzed using the Miles & Huberman interactive model. The analysis focused on the application of the "Plan-Do-Check-Act" (PDCA) framework, integrated with Total Quality Management (TQM) principles, to identify barriers and develop continuous improvement strategies. The results indicate that barriers to accelerating accreditation stem from three main categories. Internal factors include limited human resources, substandard facilities and infrastructure, and incomplete quality documentation. External factors include budgetary constraints, difficult geographical conditions, weak inter-institutional coordination, and the absence of regional regulations. Structural and bureaucratic factors include weak synergy between DPOs and a lack of urgency regarding the accreditation process.

Introduction

The Motor Vehicle Testing Technical Implementation Unit (UPT) is a strategic institution with a central role in ensuring land transportation safety (Risdianto et al., 2025; Aji & Widjajani, 2022; Kalengkongan et al., 2022). The primary function of the UPT PKB is to conduct periodic vehicle inspections to ensure their technical feasibility before they are operated on the road. The existence of the UPT PKB is not only related to road user safety but also forms part of a public service that is mandatory for local governments under statutory regulations (Taufikurrahman et al., 2026; Fadly et al., 2024; Prasetyo et al., 2025).

Minister of Transportation Regulation Number 19 of 2021 concerning the Implementation of Periodic Motor Vehicle Testing stipulates that periodic inspections can only be conducted by accredited testing units. This accreditation serves as a guarantee that services are conducted in accordance with national quality standards, including equipment suitability, human resource competency, complete operational procedures, and the implementation of an integrated service management system. Accreditation status is not merely administrative but also serves as an indicator of the official legitimacy of vehicle inspection administration (Winengan & Putra, 2025; Fansuri, 2025; Wijaya et al., 2025).

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The UPT PKB of the Nunukan Regency Transportation Agency has not yet received accreditation from the Ministry of Transportation. This situation, based on field observations and official data from the Transportation Agency from 2024, indicates multidimensional obstacles. Contributing factors include a limited number of nationally certified testers, testing equipment that does not meet national standards, suboptimal utilization of information systems, and limited regional budget allocations allocated to meet accreditation requirements (Retor et al., 2025; Wijayakusuma & Rinawati, 2025; Satori & Ulfa, 2025).

These obstacles have a direct impact on the public, particularly vehicle owners and transportation businesses (Tacderas et al., 2025; Bashingi et al., 2025; Samawi et al., 2025). Testing processes that should be conducted in Nunukan Regency are forced to be conducted elsewhere through a mechanism of "buying" tests to Tarakan City or Bulungan Regency. This situation creates additional burdens in terms of travel costs, travel time, and vehicle logistics arrangements. The geographical characteristics of Nunukan Regency, which is an archipelago and separated by seas and rivers, exacerbate the challenges of accessing test locations in other areas. The lack of accreditation also results in the loss of potential Regional Original Revenue (PAD) from the motor vehicle testing sector (Narang et al., 2026; Kumar et al., 2025; Tripathi et al., 2025). Vehicle inspections, which should be a significant source of revenue for the regional treasury, are not being optimally utilized. This potential revenue could be used to finance various other public service programs, thus reducing the local government's ability to expand and improve service quality (Moynihan, 2025).

This situation reflects the weak effectiveness of the management function of public sector work units. Managerial functions such as planning, implementation, control, and performance evaluation are not functioning optimally. The obstacles faced are not solely technical but also involve interrelated managerial, structural, and policy dimensions.

Uniform national policies also complicate the accreditation process in border areas. Underdeveloped, outermost, and frontier (3T) regions, such as Nunukan Regency, have different geographic and socio-economic characteristics than urban areas in the central region. Regulations that lack an affirmative approach often create implementation gaps, resulting in slow improvement efforts by the UPT PKB due to limited resources and policy support.

Improving the quality of UPT PKB services requires a structured, systematic, and sustainable approach (Ardiani & Nasution, 2025; Sandri & Oktavianur, 2026). One relevant method is the Plan–Do–Check–Act (PDCA) quality management cycle introduced by W. Edwards Deming. PDCA provides a framework that enables organizations to plan improvement steps, implement plans measurably, conduct periodic evaluations, and take corrective actions based on the results of these evaluations. The integration of PDCA with Total Quality Management (TQM) principles strengthens an organization's focus on continuous improvement. According to Juran (1999), implementing TQM requires the involvement of all parties within the organization, a focus on customer satisfaction, and an integrated evaluation system. This principle is relevant for the UPT PKB, which needs to develop a quality-oriented culture through active employee participation, consistent application of technical standards, and data-driven performance evaluation (Wang et al., 2025; Afaneh & Alqasa, 2025; Rozamuri et al., 2026).

Goetsch and Davis (2014) emphasize that data-driven planning is a crucial foundation for implementing PDCA. Accurate data provides the basis for developing realistic strategies that align with available resource capacity. The Plan stage of PDCA, when implemented with reference to needs and risk data, will help ensure that the UPT PKB accreditation acceleration program aligns with the Ministry of Transportation's assessment indicators. Through the application of PDCA and TQM, the UPT PKB can systematically identify obstacles, test the

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effectiveness of strategies, and implement permanent improvements. This approach not only guides the UPT PKB (Service Unit for Vehicle Testing) to meet accreditation requirements but also builds a work mechanism that is adaptive to environmental changes, both in terms of policy and user needs.

This research focuses on identifying the main obstacles hindering the accreditation process of the UPT PKB at the Nunukan Regency Transportation Agency and formulating a realistic, measurable, and locally needed acceleration strategy. The research findings are expected to contribute to the development of public sector strategic management theory and serve as practical guidance for improving the quality of motor vehicle testing services in border areas.

Methods

The research design of the study was a qualitative design that used an intrinsic case study design to explore the obstacles and plans to speed up the accreditation of the Motor Vehicle Testing Unit at the Nunukan Regency Transportation Agency. The qualitative method was deemed the most suitable since the problem being explored could not be well comprehended by just using numerical measurement. Institutional dynamics, policy interpretation, organizational readiness, and interaction of different actors in the public service system have a strong relationship with the accreditation process. In this manner, the research aimed to elicit the experiences, views, and senses of people who were directly engaged in the process of realizing the vehicle testing services in the area.

The intrinsic case study design was chosen due to the fact that the accreditation status of the Nunukan Motor Vehicle Testing Unit is a particular case of the institutional situation, which is worth studying on its own. The study was not aimed at making any generalizations but at grasping the originality of the situation in the context of its real administrative and geographical conditions. The context of Nunukan Regency is unique since it is a border area and has scattered islands with minimal infrastructure, leading to the emergence of different challenges not observed in urban testing units. These contextual features influenced the manner in which accreditation was perceived, administered and experienced by the people in charge of the service. The research could uncover the complexity of the accreditation process by paying close attention to this specific example, which would not have been readily apparent on a larger scale by employing more general comparative methods.

The study was undertaken in the Motor Vehicle Testing Unit under the supervision of Nunukan Regency Transportation Agency in North Kalimantan Province. This site was selected due to the fact that it is the only official site in the regency that provides regular vehicle checks and the fact that it was not yet an accredited site during the period of the study. Lack of accreditation made the site very pertinent to the purposes of the research. The location also offered a chance to comprehend the interaction between the local institutional capacity and national service standards in a peripheral area. Carrying out the research in the natural environment of the institution enabled the researcher to not only observe the formal practices but also the real-world situations that affect the performance of the organization.

The sample of this research was chosen purposely depending on the direct participation in the accreditation process and the awareness of the participants on the working conditions of the testing unit. Informants were the head of the unit, technical examiners, officials of the transportation agency, regional planning personnel, and members of the public who experienced the testing service. All the participants brought a unique insight that contributed to shedding light on the institutional, managerial, and practical aspects of the issue. The service users were included as their experiences offered some insight into the impact of organizational

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constraints on the access to transportation services by the populace. The variety of informants allowed the work to create a more balanced and plausible idea of the challenges under study.

The method used to gather data was in depth interview, direct observation and review of documents. The interviews were done in a loose format in order to give the participants a chance to present their experiences in their own words whilst being within the scope of the research. This method enabled the realization of the problems that might not have been evident in the official institutional reports. It was observed by visiting the testing facility and observing the physical state of the equipment, the flow of the service delivery, and the relations between the staff and the service users. Documentary sources like internal reports, policy documents, and accreditation requirements, as well as administrative records, also were reviewed to present supporting evidence and reinforce the interpretation of field data. This mixture of methods enabled the researcher to consider the problem in several ways and to relate individual experiences with institutional realities.

In qualitative enquiry, the investigator acted as the main tool of the research. This position involved the researcher being present with the participants and the research environment and being sensitive to the meanings that were produced in the field process. The researcher went into the field as a participant observer who observed professional boundaries in developing trust with the informants. This relationship was necessary since the topic of accreditation was about organizational shortcomings that would be sensitive to some participants to be open about it. Reflexivity was also maintained throughout the study as it constantly reflected on the effects that the presence of the researcher, his/her assumptions, and interpretations would have on the data. This consciousness contributed to preserving the integrity of research process and allowed to think more carefully of the findings.

Data analysis was conducted in parallel with data collection process in accordance with interactive model proposed by Miles and Huberman. The initial step was to narrow down the data by pointing out those statements and observations that were directly related to the research questions. Interviews, field notes, and documents information was then synthesized into thematic categories which indicated institutional barriers and strategic responses patterns. Once the data were organized into themes that made sense, then the researcher made sense of the interrelationship between the themes to know how internal conditions and external pressures influenced the accreditation process. No single point of drawing conclusions was made but a gradual process involved the researcher going back and forth between the data and the interpretations that were being formed. This cycle of work enabled the results to be based on the evidence taken to the field.

Result and Discussion

Barriers to Accreditation at the Nunukan Regency Motor Vehicle Testing Unit (UPT PKB)

Based on research findings, barriers to accreditation are grouped into three broad categories: internal barriers, external barriers, and structural-bureaucratic barriers. In the accreditation process for the Nunukan Regency Motor Vehicle Testing Unit (UPT PKB), one of the most prominent obstacles lies in the human resources aspect, particularly in terms of the number and competence of vehicle examiners.

> *"We only have two active examiners. Of those two, only one has participated in certified training, and even then, it hasn't reached the national level. To meet accreditation requirements, a minimum of three nationally certified examiners is required."*

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This statement reflects a significant gap between the standard requirements set by the Ministry of Transportation as stipulated in Ministerial Regulation No. 19 of 2021 concerning the Implementation of Periodic Motor Vehicle Testing and the reality of human resource capacity in the field. This limitation directly impacts the accreditation process, given that national certification for examiners is a key assessment component. This situation reflects weak support for human resource capacity development, both in terms of access to certified training, budget allocation for education and training (diklat), and long-term strategies for technical human resource management. This lack of attention to improving technical competency also results in a slow process of professional transformation and the instilling of a culture of quality in the workplace. This problem can be explained through the Total Quality Management (TQM) approach, which, according to Goetsch and Davis (2010), emphasizes the importance of involving all organizational elements in continuous quality improvement. One of the main principles of TQM is total employee involvement, namely the active and competent participation of all members of the organization. Without a trained and qualified workforce, the quality improvement process will be hampered, and continuous improvement efforts cannot be implemented effectively.

Based on the Open Systems Theory perspective proposed by Scott and Davis (2016), an organization is viewed as a dynamic entity consisting of various interdependent subsystems that interact with their environment. Within this framework, human resources (HR) are a strategic subsystem that plays a crucial role in maintaining the sustainability and effectiveness of organizational performance. If the HR subsystem experiences weaknesses in terms of quantity or quality, it will impact the overall performance of the system, including success in meeting accreditation standards.

Based on a strategic management perspective, Fred R. David (2017) emphasized that an organization's strategy will only be effective if supported by the readiness of internal resources, one of which is competent HR. Without a standardized and trained workforce, the strategy to accelerate accreditation will risk failure due to the lack of a robust implementation foundation. Furthermore, the PDCA (Plan-Do-Check-Act) approach developed by W. Edwards Deming (1986) also places human resource competency as a crucial component in the Plan and Do stages, as strategic planning and implementation of improvement programs are highly dependent on implementers who understand their duties technically and procedurally.

> *"We really want to participate in advanced training, but access to it is limited. It's expensive, and there's not always a schedule from the ministry. Often, we only learn from experience in the field."*

This statement reinforces the finding that there are structural gaps in human resource development planning, both in terms of funding and an integrated technical training management system. Weak training planning and the absence of a tiered development mechanism also indicate that the human resource management function at the UPT PKB is not functioning optimally. As a first step, short-term improvement strategies can begin with creating a competency map and conducting a training needs analysis to identify the most pressing training needs. Medium- and long-term strategies must involve collaboration with central agencies such as the Transportation Testing Center or Training Center, as well as fighting for a special budget for increasing human resource capacity through the Regional Budget.

Inadequate facilities and infrastructure are a significant hindering factor in the accreditation process of the Motor Vehicle Testing Unit (UPT PKB) of the Nunukan Regency Transportation Agency. Based on the technical provisions stipulated in Ministerial Regulation Number 19 of

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2021 concerning the Implementation of Periodic Motor Vehicle Testing, each UPT PKB is required to have complete and properly functioning testing equipment that meets national standards. However, field findings indicate that most of the testing equipment available at the Nunukan UPT PKB is in suboptimal condition, with much of it damaged or unusable.

> *"The equipment for emissions and steering system testing has not been used for a long time due to damage. There has been no budget for replacement or repair."*

This statement indicates delays in equipment maintenance and re-procurement, which should be a priority in the process of improving service quality. The absence of essential equipment such as emission testers, side slip testers, or play detectors not only hampers the completeness of motor vehicle testing but also directly impacts the validity of the test results. In addition to the primary equipment, supporting aspects such as user waiting areas, test lane conditions, drainage systems, parking facilities, and digital-based service information systems are also inadequate. The absence of a digitally integrated service system (e.g., e-KIR) results in manual administrative processes that are prone to input errors, service delays, and a lack of transparency in terms of public accountability.

This issue prevents the Nunukan Regency PKB Technical Implementation Unit (UPT PKB) from meeting the main indicators in the accreditation assessment process, which emphasizes the adequacy of facilities, equipment functionality, and the integration of the service management system. From a quality management perspective, this indicates that the work system is not yet based on standardization and service excellence. This problem can be analyzed using the Open Systems Theory perspective proposed by Scott and Davis (2016), which asserts that public organizations consist of interconnected and mutually influencing subsystems. When one subsystem, specifically infrastructure and technology, is damaged or not functioning optimally, the performance of the entire system is disrupted. Testing equipment that does not meet national standards impacts technician performance limitations, extends service times, and reduces the accuracy of test results.

This condition not only creates technical obstacles but also has systemic impacts, as it hinders the fulfillment of quality indicators required for national accreditation. Thus, infrastructure and technology issues are crucial factors in determining an organization's ability to effectively achieve accreditation targets. Total Quality Management (TQM), as proposed by Goetsch and Davis (2010), emphasizes the importance of a process approach and continuous improvement. Incomplete test equipment indicates that work processes have not been designed with strong quality control. One of the main principles of TQM is the process approach, where every process within an organization, including vehicle testing, must be supported by adequate equipment and a standardized work system. Without properly functioning and standardized equipment, it is impossible to guarantee the quality of test results or user satisfaction. A fundamental aspect of the accreditation process is the availability of supporting documentation for the management system, including Standard Operating Procedures (SOPs), quality manuals, work guidelines, and internal evaluation instruments. However, research at the Motor Vehicle Testing Unit (UPT PKB) of the Nunukan Regency Transportation Agency indicates that this remains a significant obstacle.

> *"We still rely heavily on old work habits. Not all procedures are written down and systematically documented."*

This statement illustrates that service delivery at the UPT PKB remains informal, relying on employee work routines without standard written guidelines. This not only has the potential to lead to inconsistencies in service delivery but also indicates a weak internal quality control

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system, a key requirement for the accreditation process. The issue of incomplete SOPs and quality manuals indicates that the UPT has not yet adopted a comprehensive process-based and quality management system. In accreditation, the existence of these documents serves as written evidence of operational control, implementation of service standards, and continuous improvement efforts. According to the Total Quality Management (TQM) perspective proposed by Goetsch and Davis (2010), complete and up-to-date documentation is the foundation for building an organization's quality culture. One of the principles of TQM is fact-based decision-making, which is based on data and written documents, rather than mere intuition or informal habits. Without documented SOPs and evaluation instruments, organizations will struggle to standardize services, track errors, and objectively evaluate performance.

The Plan–Do–Check–Act (PDCA) approach, comprehensively explained by Goetsch and Davis (2014), also emphasizes the importance of documentation at every stage of the lifecycle. At the Plan stage, the development of SOPs and quality plans is a crucial element, serving as the primary guide for all organizational activities. Meanwhile, at the Check stage, documentation is used to compare plans with actual results and serve as the basis for decision-making at the Act stage to take corrective action. The absence of comprehensive formal documentation, such as standardized SOPs, test records, and quality reports, results in a disorganized evaluation and improvement process. This hinders the organization's ability to demonstrate compliance with accreditation indicators and reduces the effectiveness of the continuous improvement that is the primary goal of PDCA implementation. A crucial external obstacle in the accreditation process for the Motor Vehicle Testing Unit (PKB) of the Nunukan Regency Transportation Agency is limited budget support from the Regional Government. This limited funding is a major obstacle to meeting various accreditation indicators, from procuring standardized test equipment and training technical certification for testers to developing a digital-based service information system.

> *"For the past three years, the budget allocation for the PKB UPT has been far from sufficient. We have had to adjust many things due to budget constraints. The Regional Government's primary focus is not on this sector."*

This statement illustrates the reality that the motor vehicle testing sector has not been a priority in regional development planning and budgeting. As a result, urgent needs such as rejuvenating test equipment, training the competency of testers, and improving other infrastructure cannot be optimally met. This situation indicates a mismatch between strategic planning and resource allocation. According to Fred R. David (2017), in strategic management theory, the effectiveness of strategy implementation depends heavily on the match between the designed strategy and available resources, including funding. If the budget does not support strategy implementation, achieving strategic goals such as accreditation will be very difficult. Public policy theory, as proposed by Thomas R. Dye (2013), explains that the budget is a policy instrument that reflects government priorities. When budget allocations for the land transportation sector, particularly vehicle testing, are very limited, this implicitly indicates that the sector is not considered strategic by the local government. Yet, the transportation sector is a vital part of the logistics system, road safety, and border connectivity, which are crucial for Nunukan Regency.

Budgetary limitations also create a dependency on central funds, such as the Special Allocation Fund (DAK) or technical assistance from the Ministry of Transportation. However, the process of applying for and disbursing central funds often requires the preparation of technical documents and administrative requirements, which cannot be optimally prepared due to weak

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regional budget support. This creates a vicious cycle of dependency and delay that feeds off each other. According to the Open Systems Theory proposed by Scott and Davis (2016), the budget can be viewed as one of the primary inputs in a public organization system. If this input is limited, the resulting output, in this case, quality and accredited vehicle testing services, will also be low. The system cannot function optimally without adequate resource support, both in terms of quantity and quality.

The accreditation process for Motor Vehicle Testing Units (UPT PKB) requires intensive coordination between various parties, from the UPT itself, the Regency/City Transportation Agency, the Provincial Transportation Agency, to vertical technical institutions such as the Ministry of Transportation and the Testing Center. However, research shows that this coordination mechanism is not functioning optimally in Nunukan Regency.

> *"The application process to the central government is slow because we don't regularly coordinate with the BPTD or the Directorate General of Land Transportation. Many technical processes are delayed."*

The statement above indicates a communication gap and weak synergy between institutions, which directly impacts the speed of document processing, requests for technical assistance, and follow-up supervision from the central government. Inadequate coordination also results in the Nunukan UPT PKB not immediately receiving and utilizing the latest information regarding regulations, training schedules, or equipment assistance programs.

According to the Open Systems Theory proposed by Scott and Davis (2016), weak coordination can be understood as a dysfunction in the external relations subsystem. The success of outputs, in this case achieving accreditation, is highly dependent on the effectiveness of interactions between various subsystems, including communication and cross-agency coordination. Weak coordination with relevant agencies such as the Regional Development Planning Agency (Bappeda), local governments, and the Ministry of Transportation leads to hampered program synchronization, delays in document fulfillment, and minimal technical and budgetary support. This lack of integration triggers systemic barriers that not only reduce the performance of a single work unit but also impact the organization's overall ability to meet accreditation standards in a timely and sustainable manner.

Strategic management theory, according to Fred R. David (2017), emphasizes that strategy implementation requires coordinated cross-functional decisions across units and levels of government. This lack of coordination disrupts the flow of information and resources necessary to meet accreditation indicators, such as technical data for test equipment, calibration results, human resource certification, and validation of administrative documents. This condition can also be explained through the concept of the policy implementation gap (Dye, 2013), where central policies have accreditation standards set by the Ministry of Transportation that are not fully implemented in the regions due to weak interaction and communication between policy makers and policy implementers.

Accelerated Accreditation Strategy Using the PDCA Approach

The strategy for accelerating the accreditation of the Nunukan Regency Technical Implementation Unit (UPT PKB) is designed based on the PDCA (Plan, Do, Check, Act) continuous quality management model. The PDCA model was chosen for UPT PKB accreditation because the accreditation process requires thorough planning, structured implementation, objective evaluation, and appropriate follow-up to ensure consistent compliance with the quality standards set by the Ministry of Transportation.

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The Plan stage is the initial phase that determines the strategic direction and success of the entire PDCA cycle. To accelerate accreditation, this stage involves developing a comprehensive action plan. This process includes mapping testing equipment needs that comply with national standards, including an inventory of existing equipment and estimating procurement and maintenance costs. Furthermore, certification training is scheduled for motor vehicle examiners, with a target of at least three nationally certified examiners in accordance with Ministry of Transportation regulations. This stage also includes the development and updating of Standard Operating Procedures (SOPs) and quality documents that refer to the latest regulations, such as Ministerial Regulation No. 19 of 2021. Based on an interview on May 14, 2025, Mr. Fadli, S.I.P., Head of the PKB Technical Implementation Unit, explained:

> *"We compile a list of equipment and human resource needs, then submit it as a priority proposal to the Musrenbang (Regional Development Planning Forum). The hope is that it can be included in the discussion of the revised Regional Budget (APBD) or the following year."*

This stage also emphasizes coordination across regional government agencies (e.g., the Transportation Agency, the Regional Development Planning Agency (Bappeda), the Finance Division) and technical consultation with the Ministry of Transportation's Testing Center to ensure the action plan aligns with indicators and accreditation requirements.

Strategic management theory, Fred R. David (2017), emphasizes that the success of strategy implementation depends heavily on the matching stage, namely the alignment between the developed plan and available resources and environmental conditions. Therefore, the planning stage in PDCA must be realistic, data-driven, and anticipate both internal and external constraints.

Goetsch & Davis (2014) in Quality Management for Organizational Excellence emphasize the importance of data-driven planning in the implementation of PDCA, where all strategic decisions must be supported by the results of needs analysis, risk evaluation, and achievement projections. With thorough, integrated planning that aligns with national standards, the Plan phase can provide a solid foundation for proceeding to the Do, Check, and Act phases in the accelerated accreditation cycle. The Do phase is the implementation phase of the previously developed action plan. In this phase, the focus is directed towards the systematic implementation of the planned programs, with an emphasis on increasing human resource capacity, procuring testing infrastructure, and implementing operational procedures in accordance with national standards.

Implementation began with training for examiners and technicians, including improving technical skills in vehicle testing, operating the e-KIR system, and implementing the latest Standard Operating Procedures (SOPs) aligned with Ministry of Transportation regulations. In an interview on May 16, 2025, Mr. Djunaidi, a technician at the UPT PKB, explained:

> *"We started with a test simulation using the new SOP. This also familiarized the officers with procedures that comply with national standards."*

Based on the interview above, in addition to training, procurement of priority equipment that is a primary requirement for accreditation was also carried out, such as emissions testing equipment, braking testing equipment, and headlight testing equipment. The procurement process was carried out in stages, adjusting to available budgets while ensuring the quality and technical compliance of the equipment with established standards.

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From a Total Quality Management (TQM) perspective, Goetsch & Davis (2014) emphasize that the implementation phase must emphasize conformance to requirements, namely the alignment of actions with established plans and standards. Consistent implementation with the plan will minimize the risk of deviation, increase efficiency, and accelerate the achievement of accreditation targets.

Deming (1986) emphasized that at the Do phase, organizations need to ensure well-documented standardized processes so that each implementation step can be replicated and effectively monitored. Repeated training, simulations, and direct field monitoring are crucial in ensuring the correct implementation of procedures. Through a structured, standardized implementation phase consistent with the plan developed in the Plan phase, the Nunukan Regency PKB Technical Implementation Unit (UPT PKB) can accelerate the achievement of accreditation indicators while maintaining the quality of motor vehicle testing services.

The Check phase is the evaluation phase, which aims to ensure that all program implementation in the Do phase is proceeding according to plan and meeting established standards. To accelerate the accreditation of the Nunukan Regency Technical Implementation Unit (UPT PKB), this phase is implemented through internal audits and routine evaluations conducted on a scheduled basis. Evaluations are conducted quarterly to monitor the achievement of accreditation indicators, including the completeness of quality documents, the suitability of operational procedures, the condition of test equipment, and the technical and administrative performance of vehicle testing. This evaluation process allows for early identification of any deviations or deficiencies, allowing for prompt action.

> *"A local audit team is needed for regular evaluations to ensure all procedures remain in accordance with standards and that any deficiencies are followed up."*

Internal audits serve as a form of quality control that not only assesses the final results but also examines the entire implementation process, minimizing potential errors before external assessment. From a Total Quality Management (TQM) perspective, Juran (1999) emphasized the importance of the quality assurance function, which ensures services meet quality requirements through systematic evaluation.

Goetsch and Davis (2014) also emphasized that the Check stage in the PDCA cycle serves as a feedback loop, where implementation data is compared against planned targets. If nonconformities are found, this information serves as the basis for corrective action in the next stage. The evaluation includes checking the conformity of quality documents with Ministry of Transportation standards, verifying the condition and suitability of test equipment, assessing the technical performance of testers and administrative staff, and observing the consistency of SOP implementation across all service lines. With structured, systematic, and data-driven evaluations, the Nunukan Regency PKB Technical Implementation Unit (UPT PKB) can ensure that the accelerated accreditation process is proceeding according to the established direction, while simultaneously preparing appropriate corrective steps at the Action stage.

The Act phase is the follow-up phase based on the evaluation results from the Check phase. In this phase, every finding from internal audits and routine evaluations is addressed through policy updates, revised Standard Operating Procedures (SOPs), planning adjustments, and strengthened synergy between stakeholders. Follow-up steps are not only oriented towards resolving emerging issues but also aimed at building a culture of continuous improvement within the Nunukan Regency PKB Technical Implementation Unit (UPT PKB).

Actions taken include updating quality documents, adjusting SOPs to better align with field conditions and the latest Ministry of Transportation regulations, and optimizing planning by

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prioritizing the most pressing needs. Strengthening coordination across Regional Apparatus Organizations (OPDs) is also a primary focus, particularly by strengthening the role of the Regional Development Planning Agency (Bappeda), the Finance Office, and the Regional People's Representative Council (DPRD) in supporting budget allocation. Furthermore, formal collaborations are being established with central technical agencies, such as the Motor Vehicle Testing Center and the Directorate General of Land Transportation, to expedite compliance with accreditation standards. Based on an interview on May 18, 2025, Mrs. Andi Astuti, ST, M.AP, a representative from Bappeda, emphasized:

> *"If the evaluation results show progress, it will be easier for us to propose budget support and make it a regional priority program."*

This statement reflects that the success of the Act stage is highly dependent on measurable evidence of progress, thus providing a strong basis for decision-making at the regional planning and budgeting level. From a quality management perspective, Oakland (2014) explains that the Act stage in the PDCA cycle is not merely a closing stage, but rather a bridge to the next, better cycle. This stage ensures that every improvement made does not stop at one period, but is integrated into the organizational system and culture on an ongoing basis. Oakland emphasized that the success of this stage is marked by the creation of standardization of improvements, namely a tested improvement process that is then converted into standard procedures to ensure long-term quality consistency. The Act stage is crucial to ensure that any procedural updates, procurement of standardized equipment, and improvement of human resource competencies are not merely temporary activities to meet accreditation assessments, but are truly institutionalized in the work culture. The application of PDCA here reflects the integration of technical, managerial, and policy dimensions: Plan ensures thorough planning based on local needs, do ensures measurable implementation, Check provides feedback based on field data, and Act encourages policy adaptation and systemic improvement. This approach aligns with the principle of continuous improvement, which increases the chances of successful accreditation on an ongoing basis, while also building the foundation for standardized motor vehicle testing services at the national level that are responsive to the challenges of border areas like Nunukan Regency.

Research results reveal that the accreditation process for the Motor Vehicle Testing (PKB) Technical Implementation Unit (UPT) in Nunukan Regency still faces complex obstacles stemming from internal, external, and structural-bureaucratic factors. Internal obstacles include limited human resource numbers and competencies, incomplete quality documentation, and facilities and infrastructure that do not meet national standards. External obstacles include limited budget support, geographical challenges in border and island regions that complicate coordination, minimal communication between technical institutions, and the absence of regional regulations that explicitly prioritize accreditation. Structural-bureaucratic obstacles arise from weak synergy across regional government agencies (OPD) and slow decision-making processes at the regional policy level.

Based on the PDCA (Plan–Do–Check–Act) model developed by Oakland (2014), these obstacles reflect weaknesses at all stages of the continuous improvement cycle. The Plan stage does not fully reference accurate data and measurable needs analysis. The planning process is based primarily on internal experiences and perceptions without the support of needs assessment methods or gap analysis of the Ministry of Transportation's accreditation indicators. According to Goetsch & Davis (2014), effective planning in quality management must be data-driven, so that every strategic decision has a strong foundation and is relevant to the organization's needs.

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Plans are not fully based on accurate data and comprehensive needs analysis. Planning is more reactive and does not utilize needs assessment methods and gap analysis against accreditation standards. However, according to Goetsch & Davis (2014), planning in quality management must be data-driven to ensure strategy effectiveness. The implementation process has not been implemented consistently due to budget constraints and cross-sector support. Equipment and training procurement are often carried out in stages or delayed. This situation aligns with Fred R. David's (2017) warning that alignment between strategy and resources is a determining factor in successful implementation.

Audits are not conducted routinely and are not supported by a scheduled internal audit mechanism. The evaluation stage is only conducted occasionally and does not fully utilize measurable performance indicators. Juran (2010) emphasized that the quality assurance function must be implemented consistently to ensure service quality. The implementation process is not functioning optimally due to the lack of adequate evaluative documentation. The improvements made were incidental and not yet standardized, as emphasized by Oakland (2014).

Comparison with previous research shows that these findings are similar to those of Novianto, Fahmadi, & El Tosi (2022), who found that the main obstacles to accreditation of UPT PKB in several regions also lay in limited equipment and certified human resources, as well as weak internal evaluation systems. However, this study makes a new contribution by highlighting the context of border regions such as Nunukan Regency, where obstacles are exacerbated by geographic factors, logistical limitations, and a lack of affirmative policies from the central government. This difference in context emphasizes the importance of accreditation acceleration strategies that are more adaptive and integrated, and take into account the characteristics of 3T (underdeveloped, frontier, and outermost) regions.

Based on a Total Quality Management (TQM) perspective, the situation at the Nunukan Regency Motor Vehicle Testing Unit (PKB) demonstrates that the principle of continuous improvement has not been fully implemented in a systematic and structured manner. TQM, as proposed by Juran (2010), is a management approach that requires comprehensive involvement from all organizational elements, a primary focus on customer satisfaction, and an integrated quality evaluation and control system across all work processes. The research results indicate that several key elements of TQM are not yet met. First, there is the lack of an adequate feedback system from service users, whether in the form of customer satisfaction surveys, suggestion boxes, or digital complaint mechanisms. The absence of this formal mechanism results in the organization losing a critical source of data that can be used to identify service issues, analyze root causes, and design relevant improvement strategies. However, according to Oakland (2014), customer information is one of the most important input sources in the quality improvement cycle, as it provides a realistic picture of service quality from the perspective of the beneficiary.

Internal quality measurement at the Technical Implementation Unit (UPT PKB) has not been structured. There are no key performance indicators (KPIs) consistently used to monitor technical and administrative performance. Evans & Lindsay (2014) emphasize that performance measurement in TQM serves to transform data into a basis for strategic decision-making. Without measurable indicators, decisions tend to be based on intuition or previous work habits, which can lead to ineffective policies.

The principle of total employee involvement, or the involvement of all employees in quality improvement efforts, has not been fully implemented. Interviews indicate that most improvement initiatives originate from leaders or senior technicians; while implementing and

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administrative staff have not been optimally involved in the quality planning and evaluation processes. Juran (2010) emphasizes that the success of TQM requires the contribution of every member of the organization, as quality improvement is a collective responsibility, not solely the responsibility of top management. The process approach, a fundamental principle of TQM (ISO 9001:2015), has not been consistently implemented. Existing standard operating procedures (SOPs) are incomplete and some have not been updated to comply with the latest regulations, such as Ministerial Regulation No. 19 of 2021. As a result, service processes tend to rely on legacy work practices, which do not necessarily meet accreditation standards.

The findings above indicate that although the UPT PKB (Service Unit for Public Works and Housing) is aware of the importance of quality improvement, the implementation of TQM principles remains partial and has not been integrated into the organization's management system. The absence of a customer feedback system, structured performance measurement, full employee involvement, and updated work processes are key factors limiting the effectiveness of TQM within the UPT PKB in Nunukan Regency. Therefore, strategic steps are needed to build a sustainable quality culture, starting with the establishment of an integrated evaluation system, establishing clear KPIs, increasing employee participation, and strengthening the focus on customer satisfaction as the primary measure of service success.

Empirical comparisons with previous research indicate that this situation is similar to the results of a study by Noviana & Noor (2021) at the UPTD PKB in Semarang City. They also found that limitations in the evaluation system, minimal employee involvement, and suboptimal SOP updates were key obstacles to TQM implementation. However, this study makes a new contribution by highlighting that in border areas like Nunukan, these obstacles are exacerbated by geographic constraints, limited access to technology, and minimal affirmative policy support from the central government. This contextual difference reinforces the urgency of a more adaptive TQM strategy tailored to the characteristics of the 3T (frontier and outermost) regions.

The implementation of PDCA (Plan–Do–Check–Act) in the accreditation acceleration strategy of the Nunukan Regency Motor Vehicle Testing Unit (PKB) closely aligns with the principles of Total Quality Management (TQM), as both are oriented toward continuous improvement. PDCA serves as an operational framework that guides the organization in managing the cyclical improvement process, while TQM provides a philosophical foundation and managerial principles that ensure the involvement of all organizational elements, a focus on customer satisfaction, and the use of data for decision-making.

The Plan phase, when designed based on data, can help the PKB Unit develop realistic, measurable action plans that are integrated with regional planning documents such as the Regional Work Plan (RKPD) or the Regional Medium-Term Development Plan (RPJMD). This data-driven planning aligns with the perspective of Goetsch & Davis (2014), who emphasize the importance of data-driven planning to accurately identify needs, minimize the risk of failure, and ensure that strategies are aligned with available resource capabilities. In the context of the PKB Unit, this planning includes mapping equipment needs, scheduling examiner certification training, updating standard operating procedures (SOPs) in accordance with the latest regulations, and proposing priority programs in the Regency Musrenbang (Regional Development Planning Forum).

The Do stage ensures that program implementation proceeds in stages according to the priorities established in the Plan stage, while taking into account budget and resource constraints. This measured implementation supports the process approach principle in TQM

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(ISO 9001:2015), which requires that each service process have a clear flow, documented standards, and well-defined success benchmarks.

The Check stage serves as a data-driven feedback loop mechanism, where program implementation results are evaluated using measurable performance indicators (KPIs). According to Evans & Lindsay (2014), structured evaluations enable organizations to transform performance data into the basis for accurate strategic decisions. This stage can include regular internal audits, measuring SOP compliance levels, evaluating equipment conditions, and analyzing service user satisfaction.

The Act stage ensures that all improvements resulting from the evaluation are well-documented and standardized, becoming new best practices that are consistently applied across all units. This aligns with Oakland's (2014) perspective, which emphasizes the importance of standardizing improvements to prevent the recurrence of similar problems and ensure continuous quality improvement. By strengthening each stage of the PDCA and integrating TQM principles, obstacles that have hampered the accreditation process, whether stemming from internal limitations, external support, or structural factors, can be systematically addressed. This integration also creates synergy between the technical dimension (standardization of procedures and equipment), the managerial dimension (data-driven planning and evaluation), and the policy dimension (regulatory and budgetary support).

The success of this strategy will not only lead the Nunukan Regency PKB Technical Implementation Unit (UPT PKB) to achieve accreditation according to Ministry of Transportation standards but will also foster a quality-oriented organizational culture. This culture will encourage every employee to actively participate in quality improvement, ensure public services in the motor vehicle testing sector meet national standards, and ultimately address the needs and expectations of the community, particularly in border areas that face unique geographic and logistical challenges.

Empirical evidence comparing this with previous research indicates that the synthesis of PDCA and TQM, also proposed in Pratama & Widodo's (2020) study on the Makassar City PKB Technical Implementation Unit (UPT PKB), successfully improved SOP compliance and operational efficiency after integrating the two approaches. However, this study expands on these findings by adding the dimension of affirmative action policies in the 3T (outermost) regions, which have not been widely discussed in previous research. This is an important contribution because it demonstrates that implementing PDCA-TQM in border areas requires strategic adaptation, particularly regarding logistical support, flexible regulations, and cross-agency coordination.

Conclusion

The Nunukan Regency Technical Implementation Unit (UPT PKB) has not yet achieved accreditation due to technical obstacles (non-standard equipment, lack of calibration, limited infrastructure), managerial obstacles (minimal certified human resources, weak coordination, inadequate SOPs), and policy obstacles (limited budget, low priority, no affirmative action policies for border areas). The lack of accreditation of the UPT PKB has resulted in increased costs, time, and logistical burdens for the public, as they must conduct vehicle testing outside the region (for testing purposes), such as in Tarakan City or Bulungan Regency. Furthermore, this has the potential to reduce compliance with periodic testing and lead to the loss of potential Regional Original Revenue (PAD), while simultaneously degrading the public service image of the transportation sector.

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