

Readiness of UV Express Operators for the Public Utility Vehicle Modernization Program (PUVMP) in the Province of Albay

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Abstract

This study assessed the readiness of UV Express operators in the First District of Albay to comply with the Public Utility Vehicle Modernization Program (PUVMP). Anchored on the Innovation Diffusion Theory, Socio-Technical Systems Theory, Organizational Change Management Theory, and the Resource-Based View, the study examined operators' level of awareness, operational practices, readiness of consolidated public transportation entities, anticipated implementation challenges, and support mechanisms for successful modernization. A descriptive quantitative research design using a prospective approach was employed. Data were collected through two self-made, non-standardized survey questionnaires administered to 61 UV Express operators and 25 key informants from five consolidated transportation entities. Descriptive statistics, weighted mean, and a five-point Likert scale were used to analyze the data. The findings revealed that operators generally demonstrated high awareness of the PUVMP, positive operational practices, and willingness to comply with modernization requirements. Consolidated entities were found to be generally well prepared in terms of technical proficiency and operational management but only moderately ready in financial capacity. Financial, operational, and regulatory concerns, particularly the high cost of modernization, limited financial resources, and compliance requirements, remained the major challenges affecting implementation. The study further identified government financial assistance, technical support, institutional guidance, and private sector participation as essential mechanisms for facilitating a smooth transition. Overall, the study concluded that successful implementation of the PUVMP requires strengthened financial, technical, organizational, and institutional support to enhance operators' readiness and promote sustainable public transportation. Future studies are encouraged to examine implementation across different regions and operator types, investigate specific implementation challenges qualitatively, and assess the long-term economic impacts of the modernization program. This study supports Sustainable Development Goal (SDG) 9: Industry, Innovation and Infrastructure, SDG 11: Sustainable Cities and Communities, and SDG 13: Climate Action by examining transport modernization, sustainable mobility, and cleaner public transportation. Its findings contribute to transportation policy, institutional planning, and sustainable mobility by providing evidence that may guide government agencies, transport cooperatives, and other stakeholders in strengthening modernization strategies while improving transport services and supporting operators' transition.

Keywords: Awareness, Operational Practices, Public Utility Vehicle Modernization Program, Readiness, Sustainable Transportation, UV Express Operators

1. Introduction

Transportation plays a vital role in economic growth, mobility, and access to essential services. Globally, governments are modernizing transport systems through technological innovation, sustainability initiatives, and regulatory reforms to improve efficiency, safety, and environmental performance (Colliers Encyclopedia, 1992). International efforts such as the European Union's Sustainable and Smart Mobility Strategy, Canada's public transit investments, and Japan's intelligent transportation systems demonstrate the global shift toward sustainable and integrated transport systems (European Commission, 2021; Lewis, 2024; Sancia, 2024). In the Philippines, the Department of Transportation implemented the Public Utility Vehicle Modernization Program (PUVMP) through the Road-Based Public Transport Recovery Program and Department Order No. 2017-011 to modernize public transport, improve safety, reduce emissions, and promote operational efficiency (Commission, 2020; LTFRB, 2017). The program introduced industry consolidation, modern vehicle standards, franchise reforms, and operational guidelines to achieve a more sustainable transport system (LTFRB, 2023; Board, 2017). The PUVMP has gradually expanded in the Bicol Region, including Albay, through the deployment of modern public utility vehicles under transport cooperatives (PIO, 2022). However, successful implementation depends on the readiness of UV Express operators in terms of awareness, technical capability, financial capacity, operational management, and compliance with modernization requirements. Assessing these factors is essential to identify implementation challenges and develop strategies that support a smooth transition to the PUVMP.

1.1 Background of the Readiness of UV Express Operators for the Public Utility Vehicle Modernization Program

Transportation modernization has become a global priority to improve mobility, environmental sustainability, and service quality (Colliers Encyclopedia, 1992; European Commission, 2021; Lewis, 2024; Sancia, 2024). In the Philippines, the PUVMP was introduced to modernize public transportation through fleet replacement, industry consolidation, regulatory reforms, and compliance with international vehicle standards (Commission, 2020; LTFRB, 2017; LTFRB, 2023). In the Bicol Region, modern public utility vehicles have been deployed under various transport cooperatives to improve transport efficiency and sustainability (PIO, 2022). Since UV Express remains a major transportation mode in Albay, evaluating operators' readiness is necessary to determine their awareness, compliance, financial capability, operational preparedness, and available support mechanisms. The findings may assist policymakers, transport operators, and other stakeholders in facilitating an effective implementation of the modernization program.

1.2 Themes and Insights on UV Express Operators' Readiness for the Public Utility Vehicle Modernization Program

Related literature indicates that transport modernization promotes sustainability, operational efficiency, technological advancement, and improved passenger services through the adoption of cleaner vehicles, intelligent transport systems, and digital technologies (Aruta, n.d.; Sunio, 2024; Álvarez-Antelo et al., 2024). Modernization also contributes to economic development by reducing operating costs, improving fuel efficiency, and enhancing public transport accessibility (Litman, 2009). Studies further emphasize that successful implementation of the PUVMP depends on operators' awareness, compliance with operational standards, technical proficiency, financial capability, and organizational readiness. Although many operators recognize the objectives of the modernization program, gaps remain in understanding its long-term benefits and technical requirements (Dimalanta and Morales, 2021; Tacdera, et al., 2021). Compliance likewise requires improvements in vehicle quality, environmental standards, passenger safety, service reliability, and professional operations while addressing financial constraints and infrastructure limitations (Land Transportation Office, 2023; Cudis 2019; Popioco & Morales 2017; Chuenyindee et al., 2022; Manuel, 2019; Mercurio, 2019; Newman, 2017; Gaspay et al., 2014).

1.3 Local, National, and Global Context of UV Express Modernization

Globally, governments continue investing in sustainable and intelligent transportation systems to improve mobility and reduce environmental impacts, as demonstrated by initiatives in Europe, Canada, and Japan (European Commission, 2021; Lewis, 2024; Sancia, 2024). Nationally, the Philippines implemented the PUVMP through Department Order No. 2017-011 and subsequent policies that promote fleet modernization, industry consolidation, route rationalization, and compliance with environmental and operational standards (Commission, 2020; LTFRB, 2017; LTFRB, 2023). Locally, the PUVMP has been adopted in the Bicol Region through transport cooperatives operating modern public utility vehicles. However, challenges such as limited financial resources, infrastructure readiness, route planning, and operator compliance continue to affect implementation in the First District of Albay, highlighting the need to assess operators' readiness for modernization (PIO, 2022).

1.4 Theoretical or Conceptual Basis of UV Express Operators' Readiness for the Public Utility Vehicle Modernization Program

This study is anchored on the Innovation Diffusion Theory, which explains how individuals adopt new technologies and innovations through stages of awareness, evaluation, and adoption (Rogers, 2003). It supports the assessment of how UV Express operators develop awareness and readiness to implement the PUVMP. The Socio-Technical Systems Theory emphasizes the interaction between people and technology, highlighting the need to balance human capabilities with modern transport systems for effective implementation (Abbas, 2023). Meanwhile, the Organizational Change Management Theory explains that successful modernization requires effective leadership, stakeholder participation, and strategic planning to facilitate organizational transition (Bell, 2022). Lastly, the Resource-Based View (RBV) underscores the importance of effectively utilizing financial, human, and operational resources to sustain modernization efforts and achieve long-term organizational performance (Freeman, 2021).

1.5 Research Gaps and Rationale

Previous studies have examined the objectives, benefits, and challenges of the Public Utility Vehicle Modernization Program, focusing on financial constraints, operational issues, government support, and policy implementation among public transport operators. However, most studies primarily emphasize traditional jeepneys and large transport cooperatives, with limited attention given to the specific readiness of UV Express operators (Angeles et al., 2024). Considering the distinct operational structure, route system, fare management, and financial conditions of UV Express operators, there remains a need to assess their awareness, operational practices, technical proficiency, financial capacity, operational management, anticipated challenges, and required support mechanisms for successful compliance with the PUVMP. The findings are expected to provide evidence that can guide policy improvements and facilitate a smoother modernization process for UV Express operators in the First District of Albay.

1.6 Alignment with Relevant Sustainable Development Goals (SDGs)

This study supports SDG 9 Industry, Innovation and Infrastructure by examining the readiness of UV Express operators to adopt modern transport technologies and improve public transportation systems. It also aligns with SDG 11 Sustainable Cities and Communities by promoting safer, more accessible, efficient, and environmentally sustainable public transportation. Furthermore, the study contributes to SDG 13 Climate Action through the PUVMP's objective of reducing vehicle emissions and encouraging cleaner transport operations. These SDGs are reflected in the modernization policies and sustainability goals discussed in the study (European Commission, 2021; Commission, 2020; LTFRB, 2017; PUVMP: Public Utility Vehicle Modernization Program Philippines, 2023).

1.7 Importance of the Study to Multidisciplinary Sustainability

The study contributes to transportation, environmental, socio-economic, institutional, and policy sustainability by providing evidence on the readiness of UV Express operators to comply with the PUVMP. Its findings may assist government agencies, transport cooperatives, policymakers, financial institutions, and other stakeholders in developing appropriate interventions, improving implementation strategies, strengthening institutional support, and promoting sustainable public transportation while protecting the livelihood of transport operators and improving commuter services.

2. Material and methods

2.1 Research Design

The study employed a descriptive quantitative research design using a prospective approach to describe the readiness of UV Express operators for the Public Utility Vehicle Modernization Program (PUVMP). Data were collected through two sets of survey questionnaires. The first questionnaire was administered to UV Express operators to determine their awareness and operational practices, while the second questionnaire was answered by key informants, including the Board of Directors, chairpersons of consolidated entities, and former association officers, to assess organizational readiness, anticipated challenges, and support mechanisms.

2.2 Locale of the Study

The study was conducted among UV Express operators and consolidated transportation entities operating routes bound for the First District of Albay. Official records, operator profiles, and policy documents were obtained from the local Land Transportation Franchising and Regulatory Board (LTFRB), including relevant Department Orders and Memorandum Circulars supporting the implementation of the PUVMP.

2.3 Respondents of the Study

The respondents consisted of 61 UV Express operators and 25 key informants from the five consolidated transportation entities. The key informants included the Chairpersons, Members of the Board of Directors, corporate officers, and former association officers involved in the consolidation process. UV Express operators provided data for the assessment of awareness and operational practices, while key informants provided information on organizational readiness, anticipated challenges, and support mechanisms for the PUVMP.

2.4 Sample and Sampling Procedure

The study adopted a total population approach based on the list provided by the LTFRB, which included 82 UV Express operators and five consolidated entities. However, some operators had already sold their units, declined participation, transferred residence, or could no longer be located. Consequently, 61 operators participated in the survey, representing 92.42% of the accessible operator population, together with 25 key informants from the consolidated entities.

2.5 Research Instrument

The study utilized two self-made, non-standardized questionnaires as the primary data-gathering instruments. The first questionnaire gathered information on operators' demographic profile, awareness of the PUVMP, and operational practices, including vehicle condition, compliance with emission standards, driver qualifications, adherence to routes and schedules, and passenger safety measures. The second questionnaire assessed the readiness of consolidated transportation entities in terms of technical proficiency, financial capacity, operational management, anticipated financial, operational, and regulatory challenges, and support mechanisms for the effective implementation of the PUVMP. The research instruments were developed based on existing DOTr Department Orders and LTFRB Memorandum Circulars related to the PUVMP. Prior to data collection, the questionnaires underwent pre-testing involving jeepney operators, UV Express operators, Board of Directors of transport cooperatives, and LTFRB personnel to determine their clarity and suitability for the study.

2.6 Data Gathering Procedure

The researcher secured permission from the LTFRB to obtain the list of UV Express operators and conducted in-person data collection after receiving the necessary endorsement from the Regional Director. Survey questionnaires were personally distributed to the identified UV Express operators and key informants. Upon retrieval, the completed

questionnaires were organized, tabulated, and analyzed to serve as the basis for the presentation and interpretation of the study findings.

2.7 Data Analysis Techniques

The collected data were analyzed using descriptive statistics. Microsoft Excel was utilized for data organization, coding, cleaning, and computation of statistical results. Responses were summarized using weighted mean and interpreted through a five-point Likert scale with corresponding adjectival descriptions to determine the respondents' level of awareness, operational practices, organizational readiness, anticipated challenges, and perceived support mechanisms.

2.8 Ethical Considerations

The study adhered to ethical research principles by obtaining permission and endorsement from the LTFRB before conducting data collection. Informed consent was secured from all respondents, and participation was entirely voluntary. The researcher ensured the confidentiality of all information collected and protected respondents' identities throughout the study. Furthermore, the findings were communicated responsibly to relevant stakeholders to promote transparency and proper dissemination of the research results.

3. Results and Discussion

3.1 UV Express Operators' Level of Awareness of the Public Utility Vehicle Modernization Program

3.1.1 Awareness of the Objectives and Requirements of the PUVMP

The findings revealed that UV Express operators generally agreed that they were aware of the objectives and requirements of the PUVMP, with an overall weighted mean of 4.01. Attendance in government-led seminars and consultations received the highest rating, indicating that most operators had participated in orientation activities. Operators also agreed that they understood the modernization objectives, Euro IV vehicle requirements, implementation timelines, and regularly accessed reliable information regarding the program. These findings indicate that government-led orientations have significantly improved operators' awareness of the modernization program. However, awareness remains at the "agree" level, suggesting that additional information campaigns and continuous training are still needed to strengthen understanding and readiness for compliance. This supports the findings of Dimalanta and Morales (2024) that operators generally possess only a basic understanding of the PUVMP and often focus primarily on vehicle replacement rather than the broader modernization objectives. Likewise, Tacdera et al. emphasized that awareness varies among operators and is largely influenced by participation in seminars and consultations. Operators also expressed the need for additional seminars that focus not only on consolidation but also on the overall modernization program and the specific government support available to them.

3.1.2 Understanding the Implications of the PUVMP

The results showed that respondents agreed that they understood the implications of the PUVMP, with an overall weighted mean of 4.10. Operators demonstrated the greatest awareness of the financial and operational challenges associated with the program, followed by its potential effects on their livelihood. They also agreed that they understood government incentives, the role of consolidation, and the benefits of modernization, although these received relatively lower ratings. The findings suggest that operators clearly recognize the financial and operational consequences of modernization but require a deeper understanding of available government assistance and the long-term benefits of the program. These results are consistent with Cudis (2019), who highlighted the environmental and safety benefits of modernization, and Manuel (2019), who emphasized that the high acquisition cost of modernized vehicles remains one of the primary concerns of transport operators. Respondents appreciated the government's fuel subsidy but considered it insufficient, expressing concern over reduced income, delayed dividend distribution, and the financial burden associated with loan repayments, although they acknowledged that compliance with the program is mandatory.

3.1.3 Compliance Readiness

The respondents likewise agreed that they were ready to comply with the PUVMP, obtaining an overall weighted mean of 4.12. The highest ratings were given to willingness to attend training programs and openness to joining cooperatives. Operators also agreed that they accepted changes in operational practices, were proactive in addressing compliance issues, and were willing to adopt modernized vehicles and technologies, although these indicators received comparatively lower ratings. These findings indicate that operators demonstrate a positive attitude toward modernization, particularly when adequate training and organizational support are available. However, hesitation remains regarding the adoption of modern vehicles and operational changes due to financial limitations and uncertainty about the long-term viability of the program. This supports the observations of Tacdera et al., Dimalanta & Morales (2021), and Angeles et al. (2024) that although operators generally recognize the value of modernization, financial constraints, cooperative membership requirements, and vehicle replacement costs continue to hinder full compliance. Continuous government assistance, financial support, and practical training programs remain essential to strengthen compliance readiness.

3.1.4 Benefits of the Public Utility Vehicle Modernization Program

The findings showed that UV Express operators generally agreed on the benefits of the PUVMP, with an overall weighted mean of 3.83. The highest-rated benefit was the expectation that passengers would experience safer and more comfortable transportation services, followed by recognition of the environmental benefits of reduced vehicle emissions. Operators also agreed that modernization would improve the professionalism and competitiveness of UV Express services. However, they were neutral regarding whether modernization would provide better income opportunities, indicating uncertainty about its economic advantages. The results indicate that operators recognize the social and environmental value of modernization but remain uncertain about its financial returns. Their hesitation regarding income opportunities suggests concerns about recovering modernization costs despite acknowledging improvements in passenger safety, comfort, and environmental sustainability. These findings are consistent with Ubaidillah et al. (2022), who emphasized that service quality, safety, comfort, and vehicle condition strongly influence commuter satisfaction. The findings likewise reinforce the need for stronger financial assistance, operational support, and transition programs to improve operators' confidence in the long-term economic benefits of the PUVMP while sustaining its intended improvements in public transportation.

3.1.5 Challenges to the Acceptance of the PUVMP

The respondents agreed that several factors challenge the acceptance of the PUVMP, obtaining the highest overall weighted mean (4.22) among all awareness dimensions. The greatest concern was the financial burden of acquiring modernized vehicles, which received a strongly agree rating. Operators also agreed that joining cooperatives, losing operational autonomy, experiencing disruptions during the transition, and perceiving government support as insufficient were significant concerns. These findings demonstrate that financial, operational, and organizational concerns continue to influence operators' acceptance of modernization. The substantial cost of new vehicles and apprehension about surrendering independent operations remain the principal barriers to full acceptance of the program. These observations support the findings of Monzon et al. (2023), who reported that financial burdens, fear of losing independence, and uncertainty regarding future income contribute significantly to operator resistance. The study further emphasizes that improving financial assistance, simplifying implementation guidelines, strengthening cooperative support, and expanding stakeholder engagement are necessary to encourage wider acceptance and successful implementation of the PUVMP.

3.1.6 Summary of the UV Express Operators' Level of Awareness

Overall, UV Express operators demonstrated an agree level of awareness regarding the PUVMP, with an overall weighted mean of 4.06. Among the awareness dimensions, Challenges to Acceptance obtained the highest rating, while Benefits of the PUVMP received the lowest average score. These findings indicate that although operators are generally knowledgeable about the modernization program and willing to comply, concerns regarding its financial implications remain significant. The overall findings suggest that operators possess sufficient awareness to support modernization but require stronger government intervention to address their financial concerns and improve confidence in the program. Enhanced financial assistance, clearer implementation guidelines, continuous education, and sustained stakeholder engagement are necessary to facilitate a smoother transition toward full compliance with the PUVMP.

3.2 Operational Practices of UV Express Transportation Services

3.2.1 Vehicle Condition

The findings revealed that operators strongly agreed that they consistently maintained the condition of their vehicles, obtaining an overall weighted mean of 4.67. Regular inspection of tires, brakes, safety equipment, engines, vehicle bodies, and other critical safety components received consistently high ratings, indicating that preventive maintenance is routinely practiced. The results demonstrate that operators place considerable importance on maintaining vehicle safety and reliability to comply with regulatory standards and ensure passenger protection. These findings support Chuenyindee et al. (2022), who emphasized that routine vehicle inspection and preventive maintenance reduce accidents and improve passenger safety. Similarly, Guno et al. (2021) highlighted that maintaining engines, safety equipment, and vehicle integrity contributes to operational efficiency and increases passenger confidence. Continuous government support through maintenance facilities, technical training, and financial assistance remains essential to sustain these operational practices.

3.2.2 Compliance with Emission Standards

Respondents also strongly agreed that they consistently complied with emission standards, resulting in an overall weighted mean of 4.69. Operators reported regularly verifying emission levels, assessing emission-control systems, and maintaining emission-related components to satisfy environmental requirements. These findings indicate that environmental compliance has become an integral part of vehicle maintenance among UV Express operators. Their commitment supports national efforts to reduce pollution and promote environmentally sustainable transportation. This finding aligns with Pontawe and Napalang (2018), who emphasized that compliance with emission regulations depends on proper vehicle maintenance and regulatory support. Sustaining this level of compliance requires continued access to emission testing facilities, financial incentives, and regular training on environmentally responsible maintenance practices.

3.2.3 Driver Qualifications and Training

The findings showed that respondents strongly agreed that they consistently observe proper driver qualifications and training, with an overall weighted mean of 4.68. Verification of drivers' licenses and required endorsements received the highest rating, followed by checking drivers' records for traffic violations, assessing training in defensive driving, customer service, and first aid, and evaluating continuous skills development. These results indicate that operators consistently prioritize driver competence and regulatory compliance. The results demonstrate that operators recognize qualified and well-trained drivers as essential to passenger safety, service quality, and transportation efficiency. This supports the findings of Rievaj, V., Gaña, J., & Figlus, T. (2018), who emphasized that commercial driver licensing, continuous training, and standardized driver education are fundamental to improving professional competence. The recommendation to strengthen vocational education and revive the Drivers Academy further supports the need for continuous training and stricter driver screening to sustain road safety and improve service delivery.

3.2.4 Adherence to Routes and Schedules

The respondents strongly agreed that they consistently adhere to approved routes and schedules, with an overall weighted mean of 4.59. Route planning and optimization received the highest rating, followed by monitoring delays, complying with approved routes, and preventing unauthorized stops or detours. These findings indicate that operators consistently monitor their operations to maintain service efficiency and reliability. The findings suggest that operators consider efficient route management an essential component of reliable public transportation. Continuous monitoring of routes, schedules, and service interruptions contributes to improved operational efficiency and passenger satisfaction. These findings are consistent with Arcaño et al. (n.d.), who concluded that strategic route planning, monitoring, and service adjustments improve transportation efficiency and commuter experience. The results emphasize that systematic route management remains critical to supporting the objectives of the PUVMP.

3.2.5 Passenger Safety and Comfort Measures

The study found that operators strongly agreed that they consistently implement passenger safety and comfort measures, obtaining the highest overall weighted mean (4.70) among all operational practice indicators. Air conditioning and accessibility features for persons with disabilities received the highest ratings, followed by proper lighting, emergency communication systems, passenger loading and unloading procedures, and inspection of passenger amenities. These findings indicate that operators consistently prioritize passenger welfare in their daily operations. These findings indicate that operators recognize passenger safety, comfort, and accessibility as essential components of quality public transportation. Maintaining passenger amenities and safety systems contributes to greater commuter satisfaction and supports compliance with modernization standards. These results are consistent with Chuenyindee et al. (2022), who emphasized that vehicle cleanliness, ergonomics, and driver professionalism significantly influence commuter satisfaction. The findings reinforce the importance of continuously maintaining passenger-oriented facilities to sustain high-quality transport services under the PUVMP.

3.2.6 Summary of Operational Practices

Overall, the operational practices of UV Express operators were rated strongly agree, with an overall weighted mean of 4.64. Compliance with emission standards obtained the highest rating, while adherence to routes and schedules and passenger safety and comfort measures received slightly lower, but still strongly positive, ratings. These findings demonstrate that operators consistently practice preventive maintenance, environmental compliance, driver qualification, route management, and passenger safety in accordance with modernization standards. The overall results indicate that operators have already established operational practices that align with the objectives of the PUVMP. Nevertheless, maintaining these standards requires sustained government support through technical assistance, maintenance facilities, skills development programs, and financial assistance for repairs, equipment replacement, and modernization initiatives. Such interventions will help ensure that operators continue to meet safety, environmental, and service quality requirements while transitioning to modernized transport operations.

3.3 Readiness of Consolidated Public Transportation Entities

3.3.1 Technical Proficiency

The findings revealed that consolidated public transportation entities were generally well ready in terms of technical proficiency, obtaining an overall weighted mean of 3.68. The highest-rated indicator was the planned installation of safety features such as CCTV cameras and speed limiters, followed by technical training for drivers, GPS installation and maintenance, and access to maintenance facilities. However, compliance with Euro 4 vehicle standards received only a moderately ready rating, indicating that full technical compliance has not yet been achieved. These findings suggest that consolidated entities are progressing toward modernization but still face technical limitations, particularly regarding infrastructure, maintenance facilities, and compliance with vehicle standards. This supports Detera and Hanbal (2024), who reported that operators remain willing to adopt modernization despite deficiencies in digital infrastructure and technical capability. Likewise, Guno et al. (2021) emphasized that specialized technical training remains necessary because many mechanics and drivers lack sufficient expertise in servicing and operating modern public utility vehicles. Continued

investment in infrastructure, technical support, and specialized training is therefore necessary to achieve full modernization readiness.

3.3.2 Financial Capacity

The findings indicated that consolidated public transportation entities were moderately ready in terms of financial capacity, with an overall weighted mean of 3.12. Respondents demonstrated the highest level of readiness in understanding the financial requirements of fleet modernization, followed by financial planning, access to government financing, loan management, and availability of financial resources. The lowest rating was recorded for the organization's ability to acquire modernized vehicles, reflecting the considerable financial burden associated with modernization. These findings suggest that although operators recognize the financial demands of the PUVMP, they remain constrained by limited capital, insufficient financial planning, and difficulty accessing financing programs. Respondents reported that acquiring a modernized vehicle requires approximately ₱3 million, while the average member contribution is only ₱35,000, making modernization financially challenging. These results support the findings of Gatarin (2023) and Sunio et al. (2024), who identified financial limitations as one of the greatest barriers to modernization despite the availability of government financing. Similarly, operators continue to face difficulties due to equity requirements, loan conditions, and high interest rates, emphasizing the need for stronger financial assistance, financial literacy programs, and more accessible financing mechanisms to achieve successful modernization.

3.3.3 Operational Management

The findings revealed that consolidated entities were generally well ready in terms of operational management, with an overall weighted mean of 3.92. The highest ratings were obtained for preparedness to adapt to operational changes required by the PUVMP and the ability to manage commuter feedback. Respondents also reported being well prepared in coordinating with government agencies, implementing organizational policies, maintaining competent management teams, establishing organizational structures, and monitoring operational performance. However, the development of a comprehensive route management plan aligned with the Local Public Transport Route Plan (LPTRP) received only a moderately ready rating. The results indicate that consolidated entities have developed organizational systems capable of supporting modernization and complying with government regulations. Nevertheless, weaknesses in route planning remain a significant concern because the absence of approved LPTRPs delays the development of provincial route plans. These findings are consistent with Mateo-Babiano et al. (2020) and Pontawe & Napalang (2018), who reported that consolidation improves fleet management, service quality, and regulatory coordination. Likewise, Tacderas et al. (2021) emphasized that transport cooperatives often encounter difficulties in collaboration and strategic planning, particularly when coordinating with local government transport policies. Strengthening route planning and policy implementation remains essential to improving operational readiness and ensuring long-term sustainability under the PUVMP.

3.3.4 Summary of the Readiness of Consolidated Public Transportation Entities

Overall, the consolidated entities were assessed as well ready for modernization, with an overall weighted mean of 3.57. Operational management obtained the highest rating, followed by technical proficiency, while financial capacity received the lowest rating and remained only moderately ready. These findings indicate that although consolidated entities possess adequate organizational and technical preparedness, financial readiness continues to be the greatest obstacle to successful modernization. The overall findings suggest that modernization efforts should prioritize strengthening financial support mechanisms while sustaining improvements in technical capability and operational management. Government agencies should strictly implement the Local Public Transport Route Plan (LPTRP), establish mentorship programs between established and emerging consolidated entities, and continue providing technical and institutional support to facilitate a smoother transition toward full compliance with the PUVMP.

3.4 Anticipated Challenges Encountered by Consolidated Public Transportation Entities

3.4.1 Financial Aspects

The findings showed that respondents agreed that financial concerns remain one of the major anticipated challenges in implementing the PUVMP, with an overall weighted mean of 3.77. The greatest concern was the inability of capital share contributions to sustain financial operations, followed by the high cost of modernized vehicles, expensive loan requirements, difficulty accessing government financing programs, and insufficient government subsidies. These findings indicate that financial sustainability remains a significant concern among consolidated entities. The results demonstrate that modernization requires substantial financial investment beyond the current capacity of many transport cooperatives. Long-term budgeting, financial management, and diversified funding sources are therefore necessary to sustain modernization efforts. These findings are supported by Angeles et al. (2024) and Dimalanta & Morales (2024), who identified high amortization costs, expensive modernization requirements, and complicated financing procedures as major obstacles to modernization. Likewise, Pontawe and Napalang (2018) emphasized the importance of financial planning and loan management in ensuring the long-term sustainability of transport cooperatives. Strengthening financial assistance and improving access to financing remain critical for the successful implementation of the PUVMP.

3.4.2 Operational Aspects

The respondents also agreed that operational issues constitute major challenges during modernization, obtaining an overall weighted mean of 3.56. The highest-rated concern was the high cost of maintaining modernized vehicles, followed by limited access to maintenance infrastructure and the need for additional driver training. Respondents were neutral regarding the challenges associated with integrating advanced technologies and adapting to new safety and monitoring requirements, suggesting varying levels of confidence in these areas. The findings indicate that operators recognize modernization as operationally demanding, particularly because of vehicle maintenance costs, infrastructure limitations, and workforce development needs. Although respondents acknowledge the necessity of modernization, uncertainty remains regarding technology integration and compliance with new operational requirements. These findings are consistent with Yu (2023), who highlighted that implementation deadlines and regulatory requirements create operational uncertainty for transport operators. The study further emphasizes the importance of improving infrastructure, providing accessible maintenance facilities, expanding technical training, and offering clear operational guidelines to support successful modernization and long-term operational sustainability.

3.4.3 Regulatory Aspects

The findings indicated that respondents agreed that regulatory compliance would remain a major challenge in implementing the PUVMP. Operators expressed concern over complying with government regulations, obtaining the required permits and approvals, adapting to changing implementation guidelines, and meeting regulatory timelines. These findings suggest that while operators recognize the necessity of complying with government policies, they also anticipate significant administrative and procedural difficulties during the modernization process. The results imply that regulatory requirements, delays in approvals, and changing implementation policies may slow the transition to modernization. Effective communication between transport entities and regulatory agencies, together with clearer implementation guidelines and streamlined approval processes, is therefore essential. These findings support previous studies emphasizing that complex regulatory requirements, franchise consolidation, permit processing, and compliance with transport policies remain major obstacles to successful modernization. Continuous coordination between transport operators, the LTFRB, DOTr, and local government units is necessary to facilitate timely compliance and reduce implementation delays.

3.4.4 Summary of the Anticipated Challenges

Overall, the findings indicate that consolidated public transportation entities anticipate significant financial, operational, and regulatory challenges in implementing the PUVMP. Financial concerns emerged as the greatest obstacle, particularly the high cost of vehicle acquisition, limited capital, loan repayment requirements, and insufficient financial assistance. Operational issues involving infrastructure, maintenance, and workforce development also require substantial preparation, while regulatory compliance remains dependent on clear policies, timely approvals, and effective coordination among concerned government agencies. These findings demonstrate that although operators are generally willing to modernize, comprehensive institutional, financial, and technical support remains necessary to ensure a successful transition to the PUVMP.

3.5 Support Mechanisms for the Smooth Implementation of the PUVMP

3.5.1 Government Support Mechanisms

The findings revealed that respondents generally viewed government support mechanisms as essential in facilitating compliance with the PUVMP. Financial assistance, accessible loan programs, technical training, regulatory guidance, route planning, and institutional support were identified as critical interventions that would enable transport operators to transition more effectively to modernization. These findings indicate that operators recognize the government's central role in reducing the financial and operational burden associated with modernization. The results support previous literature emphasizing that government intervention through subsidies, financing assistance, capacity-building programs, route rationalization, and continuous stakeholder engagement significantly improves modernization readiness. Strengthening these interventions would not only improve compliance but also increase operator confidence, reduce implementation barriers, and promote long-term sustainability of the modernization program.

3.5.2 Private Sector Support Mechanisms

The findings further suggest that private sector participation is equally important in supporting the modernization process. Respondents recognized that financial institutions, vehicle manufacturers, maintenance providers, and technology companies could contribute by offering accessible financing, technical assistance, maintenance services, GPS technologies, automated fare collection systems, and continuous workforce development. These initiatives would complement government efforts and improve the overall sustainability of modernization. These findings agree with previous studies emphasizing that successful modernization requires strong collaboration between government agencies and private institutions. Partnerships that provide affordable financing, technical expertise, modern transport technologies, and continuous capacity-building programs will strengthen transport cooperatives' ability to comply with modernization requirements while maintaining efficient and sustainable operations.

4. Conclusion & Recommendations

The study assessed the readiness of UV Express operators to comply with the Public Utility Vehicle Modernization Program (PUVMP) by examining their level of awareness, operational practices, readiness of consolidated entities, anticipated challenges, and support mechanisms. The findings showed that operators generally demonstrated high awareness of the program and positive operational practices, while consolidated entities exhibited readiness to comply with modernization requirements despite financial constraints. Financial, operational, and regulatory challenges, particularly those related to funding and implementation, remain significant barriers to successful compliance. Overall, the successful implementation of the PUVMP depends on strengthened financial, technical, organizational, and institutional support from both government and private stakeholders to facilitate a sustainable transition toward a modernized public transportation system.

Future studies may expand the scope of this research by conducting comparative analyses across different regions and types of public utility vehicle operators, undertaking in-depth qualitative investigations of specific implementation challenges, and assessing the long-term economic impacts of the Public Utility Vehicle Modernization Program on transport operators and consolidated entities to provide broader evidence for transportation policy implementation.

This study was limited in assessing the long-term economic impact of the Public Utility Vehicle Modernization Program on the livelihood and financial condition of UV Express operators during the transition process. As a result, the study was unable to comprehensively evaluate the sustained economic outcomes of modernization, indicating the need for further research that examines long-term policy implementation and its effects on transport operators.

Compliance with ethical standards

The author declares no conflict of interest. This study received no external funding and was conducted with the cooperation of the participating UV Express operators and the concerned institution. Participation was voluntary, and informed consent was obtained from all respondents prior to data collection, which was conducted using non-invasive survey methods. All information collected was treated with strict confidentiality, and no personally identifying information was disclosed or included in the study.

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