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Total Quality Management Practices and Operational Performance in Business-to-Business Services: An Empirical Study of PT Pratama Mitra Sejati

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ABSTRACT

This study examines the relationship between four Total Quality Management (TQM) practices, namely organizational leadership, customer relationships, human resource management, and supplier management, and operational performance at PT Pratama Mitra Sejati, a business-to-business (B2B) service company specializing in vehicle rental and office building management. The study adopts an explanatory quantitative approach with a cross-sectional design. Primary data were collected through a questionnaire survey involving 52 employees and managers directly engaged in operational activities, selected using purposive sampling. The data were analyzed using multiple linear regression, supplemented by bootstrapping with bias-corrected and accelerated (BCa) 95% confidence intervals and HC3 robust standard errors. The results indicate that organizational leadership, human resource management, and supplier management are positively and significantly associated with operational performance, whereas customer relationships exhibit no statistically significant partial association. Collectively, the four TQM practices significantly explain variations in operational performance, with an R^2 value of 0.763. Supplier management demonstrates the largest standardized beta coefficient, and the findings remain consistent in the sensitivity analysis. These findings suggest that TQM practices differ in their contributions to operational performance in a B2B service context. Furthermore, the non-significant association between customer relationships and operational performance after controlling for the other TQM practices suggests the possibility of indirect effects or overlapping explanatory contributions among the practices.

Keywords: Total Quality Management, Operational Performance, Business-to-Business, Service Companies, Supplier Management.

I. Introduction

In the era of continuous globalization, the service sector faces increasing competitive pressure as corporate customer expectations for service quality and consistency rise, leading service companies to place greater emphasis on customer-oriented performance metrics (Alkhatib et al., 2026). Service companies operating under a Business-to-Business (B2B) business model are required to provide services that are not only reliable and timely but also meet the quality standards agreed upon with corporate clients, making

service quality a key competitive requirement for service companies (Albadry et al., 2025). These conditions drive service companies to adopt structured quality management approaches, one of which is Total Quality Management (TQM), as a means to support competitiveness and operational performance sustainably (Tsou et al., 2021). In the context of Business-to-Business (B2B) service companies, operational quality is a key aspect because the company needs to meet client needs consistently and on time. As a service company, PT Pratama Mitra Sejati faces various operational challenges, such as maintaining consistent service quality, coordinating across operational divisions, and ensuring the satisfaction of corporate clients with high service standards. Therefore, the implementation of a sound quality management system can be one of the factors supporting the company's operational performance. Total Quality Management (TQM) is a management system that focuses on meeting customer needs through continuous improvement of processes, human resources, and services across all organizational lines (Alkhatib et al., 2026). The implementation of TQM in service organizations is considered a competitive advantage that directly impacts operational effectiveness and sustainability of corporate competitiveness (Tsou et al., 2021). Research on small and medium enterprises in the service sector in Gulf Cooperation Council countries shows that TQM has a positive and significant influence on service quality, with organizational agility acting as a mediating mechanism (Albadry et al., 2025).

Operational performance is one of the key aspects in assessing organizational success, reflecting a company's ability to deliver quality services, reduce operational costs, enhance productivity, and meet client commitments on time (Bytyçi et al., 2023). Various empirical studies show that the implementation of TQM contributes positively to improved operational performance in both manufacturing and service companies (Adem & Viridi, 2024; V. Singh et al., 2018). In a study of manufacturing and service companies in India, all TQM components were found to be positively related to organizational performance, indicating that the relevance of TQM is not limited to the production sector (V. Singh et al., 2018). Nevertheless, a recent systematic review shows that research on quality management and operational performance is still dominated by the manufacturing sector (around 67% of studies), while service-sector studies account for only about 19% and are generally concentrated in healthcare, hospitality, and retail (Alkhatib et al., 2026). Among the service sectors that have been studied, Zehir and Zehir (2023) found in Turkish hospitals that TQM practices, including management leadership, customer focus, and supplier relationships, significantly explain 53.4% of the variance in operational performance, reinforcing the relevance of TQM in various types of service organizations outside the manufacturing sector. However, B2B services differ from these consumer-oriented services, as relationships with clients are long-term, complex, and highly dependent on trust and the quality of the promised services (Gansser et al., 2021). Therefore, empirical evidence regarding TQM practices in B2B services such as vehicle rental and office building management remains limited.

Bytyçi et al. (2023) identified five TQM components that influence operational performance: organizational leadership, customer relationship, human resource management, strategic planning development, and supplier management. Using an OLS model with 308 respondents, they found that organizational leadership and supplier management had the largest influence, while strategic planning development had the smallest. Although the study was conducted in a manufacturing context, the five identified TQM components are considered relevant to the context of B2B service companies (V. Singh et al., 2018). The application of TQM in the service sector has also been demonstrated in the banking industry, where TQM practices encompassing management leadership, human resource management, quality assurance, and continuous process improvement significantly influence organizational innovation performance (Ahinful et al., 2025). Organizational leadership is a component of TQM that plays an active role in communication and organizational goal planning to improve service quality (V. Singh et al., 2018). In the service industry, human resources are the spearhead of delivering value to clients, so training, development, and employee engagement are key factors for employee performance, which in the service industry is closely related to the service quality received by clients (Bashar et al., 2024). Customer relationship in TQM encompasses identifying client needs and developing customer-centric service strategies for continuous improvement (Sweis et al., 2016). This is particularly crucial for B2B service companies because the success of long-term contracts with corporate clients heavily depends on the ability to understand and meet specific client needs. Effective

supplier management is also positively correlated with supply chain performance, as the quality of service provided to clients also relies on the reliability of partners and suppliers in the service chain (Al-Shboul, 2024).

PT Pratama Mitra Sejati (PMS) is a service company affiliated with Tugu Group that is engaged in vehicle rental and office building management, serving corporate clients from various industries with a B2B business model (PT Pratama Mitra Sejati, 2024). The complexity of managing a large vehicle fleet, the high dependence on suppliers and service partners, and the demand to meet corporate clients' service standards (Service Level Agreements) make the implementation of TQM relevant for examination in the context of this company. However, the implementation of TQM in service companies, including those with a B2B business model, often faces various challenges. The success of TQM is highly dependent on top management commitment and employee involvement (Khandelwal & Sahu, 2025), whereas supply chain performance depends on the quality of relationships with suppliers (Al-Shboul, 2024). Consequently, weak management commitment, a lack of interdivisional synergy, and suboptimal management of relationships with strategic partners and suppliers can become barriers to TQM implementation. These conditions can lead to a decline in the satisfaction of corporate clients with high service standards, thereby threatening the continuity of contracts and the company's reputation. Several studies confirm that TQM success relies on a combination of complementary practices, meaning that optimal organizational performance is determined more by the integration of TQM components than by the separate implementation of individual components (Ahsan & Ullah, 2025). Beyond this contextual gap, findings regarding the relationship between customer relationship/customer focus and organizational performance remain inconsistent across studies. For instance, Bytyçi et al. (2023) found a strong positive correlation between customer relationship and operational performance, while a more recent study by Alsaqer et al. (2024) in the GCC telecommunications sector found that customer focus had no significant effect on customer satisfaction ($\beta = 0.144$; $t = 1.99$; $p = 0.052$), in contrast to other TQM practices such as employee engagement and process management, which remained significant in the same model.

This inconsistency is further reinforced by the view that TQM practices are interconnected and complementary (Ahsan & Ullah, 2025), meaning that the unique contribution of customer relationship to operational performance, beyond that of other TQM practices, still requires further clarification. Furthermore, few studies have simultaneously tested the combination of organizational leadership, customer relationship, human resource management, and supplier management within a single model in the context of a B2B service company operating in vehicle rental and building management. This study aims to address three gaps, namely the contextual gap, the inconsistency of findings across TQM components, and the lack of simultaneous testing of combined practices, by analyzing the relationship between four TQM practices, namely organizational leadership, customer relationship, human resource management, and supplier management, and operational performance at PT Pratama Mitra Sejati. The contributions of this research lie in three aspects. First, contextually, this study tests TQM practices in a B2B service company operating in vehicle rental and office building management, an operational context distinct from manufacturing companies, as service quality heavily depends on human resource competence, supplier and partner reliability, and operational process consistency. Second, in terms of the model, the four TQM practices are tested simultaneously in a single regression model, allowing the unique contribution of each practice to be assessed after controlling for the others. Third, in terms of findings, this study demonstrates that customer relationship is no longer significantly associated with operational performance when the other three TQM practices are controlled for in the model, thereby providing empirical evidence that TQM practices do not contribute equally to operational performance in the B2B service context. Thus, this study is expected to expand empirical evidence regarding the implementation of TQM in the service sector while offering managerial implications for B2B companies in determining the quality improvement priorities most relevant to enhancing operational performance. Based on the background above, the research questions of this study are formulated as follows:

- a. Is organizational leadership associated with operational performance?
- b. Is customer relationship associated with operational performance?

- c. Is human resource management associated with operational performance?
- d. Is supplier management associated with operational performance?
- e. Are organizational leadership, customer relationship, human resource management, and supplier management jointly associated with operational performance?

II. Literature Review and Hypothesis Development

2.1. Total Quality Management (TQM): Theoretical Perspective

Total Quality Management (TQM) is a management philosophy that emphasizes the achievement of quality across all aspects of an organization. Its theoretical foundations were established by quality management scholars such as Deming, Juran, Crosby, and Ishikawa, whose ideas emphasize continuous process improvement, alignment of quality with customer needs, and employee involvement (Bytyçi et al., 2023). Over time, TQM has evolved into a management system focused on meeting customer needs through continuous process improvement, human resource development, and service enhancement. Recent systematic reviews indicate that quality management practices are positively associated with efficiency and operational performance in both manufacturing and service organizations (Alkhatib et al., 2026; V. Singh et al., 2018). However, conceptualizing TQM solely as a collection of management practices does not fully explain how these practices contribute to organizational performance. Accordingly, this study examines TQM from the perspective of the Resource-Based View (RBV), which posits that competitive advantages arise from resources and capabilities that are valuable, rare, difficult to imitate, and effectively organized (Barney, 1991). From this perspective, TQM practices are not merely replicable procedures but organizational capabilities embedded in socially complex relationships and established work routines. These capabilities develop gradually and are therefore difficult for competitors to imitate (Almaamari et al., 2025; Xu et al., 2026). Meanwhile, contingency theory emphasizes that the effectiveness of TQM practices is not universal but depends on the characteristics of the organizational context in which they are implemented (Xu et al., 2026). Integrating these two perspectives provides a theoretical basis for expecting that individual TQM practices may differ in their relationships with operational performance, particularly in B2B service settings, which have distinct characteristics compared with manufacturing environments. Regarding the underlying mechanism, this study conceptualizes the relationship between TQM practices and operational performance through the following pathway: quality practices → process capabilities → operational performance. Soft TQM practices, such as organizational leadership and human resource management, establish the foundation for developing human capabilities and a quality-oriented organizational culture. These foundations enable more technical practices and operational processes to function consistently (A. P. Singh & Regasa, 2026). Supplier management extends the company's resource base to external partners. In service organizations, where service quality depends partly on inputs provided by suppliers and business partners, the reliability of the supplier network becomes an integral part of the company's operational capabilities (Alkalha et al., 2025).

Customer relationship, meanwhile, represents an externally oriented practice whose relationship with internal operational performance may be more indirect, particularly when customer needs must first be translated into process improvements (A. P. Singh & Regasa, 2026). Finally, because TQM practices function as complementary elements of an integrated system (Ahsan & Ullah, 2025), this study examines the four practices simultaneously to assess the unique contribution of each practice to operational performance while controlling for the others. To operationalize TQM, this study adopts the framework developed by Bytyçi et al. (2023). This framework was selected over alternative TQM frameworks for three reasons. First, it directly examines the relationships between TQM components and operational performance, which is also the dependent variable in the present study. In contrast, excellence models such as the Malcolm Baldrige framework and the European Foundation for Quality Management (EFQM) model generally serve as comprehensive tools for assessing organizational excellence across a broader range of business outcomes. Second, the framework defines its components in terms of managerial practices rather than technical tools

specific to manufacturing, making them applicable to and assessable by employees in service organizations. Third, its components are consistent with practices examined in service-sector TQM research, including leadership, customer focus, and supplier relationships in hospitals (Zehir & Zehir, 2023), as well as leadership and human resource management in the banking sector (Ahinful et al., 2025). This study focuses on four TQM practices considered particularly relevant to the operational characteristics of B2B service companies: organizational leadership, customer relationship, human resource management, and supplier management. Accordingly, the study does not seek to represent the entire TQM construct. Strategic planning and development is excluded because Bytyçi et al. (2023) reported that this component had the weakest influence on operational performance relative to the other components examined. Furthermore, strategic planning and development generally involves decisions made at the top management level. Consequently, respondents at the staff or operational employee level, who constitute the majority of the respondents in this study, may have limited involvement in or direct knowledge of these activities. In the context of B2B services, the four selected components are also operationally relevant: organizational leadership establishes the direction of quality policies, customer relationship focuses on meeting corporate clients' needs, human resource management supports workforce competence, and supplier management helps ensure the availability of inputs required for operational processes.

2.2. Operational Performance

Operational performance is one of the fundamental dimensions used to evaluate organizational success. Bytyçi et al. (2023) define operational performance as a company's ability to deliver high-quality services, reduce operational costs, increase productivity, and fulfill customer commitments consistently and on time. Based on this definition, the present study operationalizes operational performance using four dimensions that are particularly relevant to B2B service companies and can be readily assessed by respondents: operational process efficiency, service quality, timeliness of work completion, and work productivity. Operational process efficiency is included because recent reviews identify efficiency as one of the primary outcomes of quality management practices, alongside quality and customer satisfaction (Alkhatib et al., 2026). This dimension can also be directly assessed by employees involved in day-to-day operational activities. However, it is not intended to serve as a substitute for the cost dimension. Operational costs are not measured directly in this study because access to cost data is limited and such data fall outside the scope of assessment for most respondents. This limitation is acknowledged in the study. Collectively, these four dimensions reflect an organization's ability to optimize internal processes to create value for customers and other stakeholders.

In B2B service companies such as PT Pratama Mitra Sejati, operational performance encompasses several interrelated aspects, including vehicle fleet reliability, consistency in driver performance, efficiency in building management, and the ability to respond to corporate clients' needs promptly and accurately. In their study of manufacturing and service companies in India, V. Singh et al. (2018) emphasized that operational performance reflects the effectiveness of quality management system implementation. Their findings indicate that companies that successfully integrate TQM into their operational processes tend to achieve better performance than those that implement these practices inconsistently. The importance of measuring operational performance in fleet-based services is also supported by Marques et al. (2022), whose research on the fleet maintenance industry demonstrated that service productivity should be evaluated from both the buyer's and the service provider's perspectives. This is because optimizing inputs and outputs for one party does not necessarily produce optimal outcomes for the other in an outsourcing relationship. This consideration is particularly relevant to fleet management at PT Pratama Mitra Sejati, where operational performance depends on the coordination of service delivery and the fulfillment of corporate clients' requirements.

2.3. Organizational Leadership

Organizational leadership is a key component of Total Quality Management (TQM) that supports the effective implementation of a quality management system. V. Singh et al. (2018) define organizational leadership as the ability of leaders to actively communicate the quality vision, establish organizational goals, provide the necessary resources, and foster an environment that supports quality achievement at all organizational levels. Top management commitment is a significant factor influencing the success of TQM implementation, alongside employee involvement and continuous improvement, which collectively contribute to organizational quality and operational efficiency (Khandelwal & Sahu, 2025). In B2B service companies, strong leadership is essential for maintaining consistent service standards amid operational complexities involving large vehicle fleets and numerous drivers, as illustrated by PT Pratama Mitra Sejati. In the banking sector, Bashar et al. (2024) similarly found that top management commitment is associated with employee performance, alongside employee involvement, training, and development. Further evidence from Ma et al. (2025) indicates that transformational leadership is positively and significantly associated with employees' implementation of quality management practices, customer orientation, and process management, although its relationship with strategic quality planning is not statistically significant. This finding is consistent with the rationale for excluding strategic planning and development from the components examined in the present study.

Overall, evidence from the manufacturing, banking, and hospitality sectors generally supports the role of leadership as a TQM practice positively associated with organizational performance. In some studies, leadership has even emerged as the strongest contributing factor (Bytyçi et al., 2023). However, much of this evidence originates from contexts other than B2B services. The relationship between quality-oriented leadership and operational performance can be explained through three mechanisms. First, leaders establish clear directions and quality standards, thereby reducing inconsistencies in work methods across organizational units. Second, they allocate the resources required for process improvement, including time, budgets, and training. Third, leaders who demonstrate quality-oriented behavior and remain receptive to employee input can facilitate the early identification and resolution of operational problems. From the Resource-Based View (RBV) perspective, leadership plays a crucial role in coordinating organizational resources and capabilities to ensure that they function effectively together. In B2B service companies with multiple operational divisions, such as fleet management and building management, these mechanisms are expected to contribute to greater process efficiency, more consistent service quality, and improved timeliness of work completion. Accordingly, this study proposes the following hypothesis:

H1 : Organizational leadership is positively associated with operational performance.

2.4. Customer Relationship

Within the TQM framework, customer relationship refers to the continuous identification, understanding, and fulfillment of customer needs. It is considered an important component of TQM because quality improvement initiatives ultimately aim to meet and exceed customer expectations (V. Singh et al., 2018). Sweis et al. (2016) define customer relationship in TQM as a set of practices involving the identification of customer needs, the development of customer-oriented service strategies, the improvement of services based on customer feedback, the professional handling of complaints, and the periodic evaluation of customer satisfaction. In the B2B context, customer relationships differ from those in business-to-consumer (B2C) markets because they typically involve complex contract negotiations, mutually agreed-upon service standards established through Service Level Agreements (SLAs), and substantial interdependence between service providers and corporate clients. Consequently, strong customer relationships provide a foundation for long-term client loyalty and contract renewal. Bytyçi et al. (2023) found a positive correlation between customer relationship and operational performance ($r = 0.491$), ($p < 0.001$). However, the empirical evidence

is not consistent across studies. In contrast to Bytyçi et al. (2023), Alsaqer et al. (2024) found that customer focus was not statistically significant when examined alongside other TQM practices. This discrepancy suggests that the unique contribution of customer relationship to organizational outcomes may depend on the other TQM practices included in the analytical model. The relationship between customer relationship and operational performance can be explained by the flow of information from clients into internal operational processes. A thorough understanding of client requirements and SLA provisions enables companies to establish appropriate service standards from the outset. Meanwhile, promptly addressing complaints and feedback allows service deficiencies to be identified and corrected before they recur, potentially reducing rework and delays. Nevertheless, as discussed in Section 2.1, this mechanism depends on the translation of customer needs into concrete process improvements. Therefore, the relationship between customer relationship and internal operational performance may be indirect or may overlap with the contributions of other TQM practices. Based on this theoretical rationale and the findings reported by Bytyçi et al. (2023), this study proposes the following hypothesis:

H2 : Customer relationship is positively associated with operational performance.

2.5. Human Resource Management (HRM)

Human resource management (HRM) is a component of Total Quality Management (TQM) that focuses on developing employees' capabilities and competencies as essential assets for achieving organizational quality. It encompasses targeted recruitment and selection, structured and continuous training, career development programs, and the formation of effective work teams (V. Singh et al., 2018). Bashar et al. (2024) found that top management commitment, employee engagement, and training and development are associated with employee performance in the banking sector. These findings are consistent with the view that well-trained, engaged, and empowered employees are essential to delivering consistent service quality, particularly in service organizations that rely on direct customer interactions (Khandelwal & Sahu, 2025). In B2B service companies such as PT Pratama Mitra Sejati, human resources include professional drivers, vehicle technicians, building management staff, and administrative personnel, all of whom contribute directly to the quality of services delivered to corporate clients. Their contributions can be supported through regular training programs and standardized performance evaluation systems. Nong et al. (2024) found that employee competencies and the alignment between employee competencies and job requirements are associated with the business performance of logistics companies, highlighting the importance of investing in employee competency development. Overall, these studies indicate a positive relationship between human resource practices and performance. However, most examine employee performance or overall business performance rather than operational performance directly. Therefore, the relationship between HRM and operational performance in the B2B service context warrants further empirical investigation. The relationship between human resource management and operational performance can be explained through employee competence and role clarity. Training and development enhance the technical competencies of drivers, technicians, and building management staff, potentially reducing work errors and rework. Clear task allocation minimizes overlapping responsibilities and role ambiguity across organizational units, while employee motivation encourages consistent adherence to service standards. From the Resource-Based View (RBV) perspective, the employee competencies developed through these practices constitute organizational resources that may be difficult for competitors to imitate. Accordingly, this study proposes the following hypothesis:

H3 : Human resource management is positively associated with operational performance.

2.6. Supplier Management

Supplier management is a component of TQM that focuses on managing relationships with suppliers and external partners as an integral part of achieving overall quality. It encompasses quality-based supplier selection, periodic supplier performance evaluations, supplier capability development, and collaboration in product and process innovation (Du et al., 2023). Al-Shboul (2024) found that the quality of supplier relationships, particularly trust and reliability, is positively associated with supplier relationship management and, ultimately, improved supply chain performance. Similarly, Alkalha et al. (2025) demonstrated that supplier quality integration is indirectly associated with operational performance through stronger internal quality integration and greater organizational absorptive capacity. In B2B service companies, supplier management involves coordinating relationships with vehicle suppliers, partner workshops, spare parts suppliers, building equipment suppliers, and other service providers that support business operations. With a fleet of more than 3,500 vehicles, PT Pratama Mitra Sejati depends substantially on the reliability of its suppliers and service partners. Bytyçi et al. (2023) identified supplier management as the TQM component with the strongest reported relationship with operational performance, with a coefficient of determination of ($R^2 = 0.399$), a regression coefficient of ($\beta = 0.534$), and a reported p-value of 0.000.

These findings are consistent with those of Emon et al. (2024), who found that supplier collaboration and long-term supplier relationships significantly improved cost efficiency among manufacturing and service companies in Bangladesh, explaining approximately 64.2% of the variation in company cost efficiency. Collectively, these findings indicate a consistent positive direction, although the underlying mechanisms differ. Some studies report a direct relationship between supplier management and performance (Bytyçi et al., 2023; Emon et al., 2024), whereas others suggest that this relationship operates through internal quality integration (Alkalha et al., 2025). This evidence highlights the importance of supplier management in supporting operational processes and organizational performance. The relationship between supplier management and operational performance can be explained through the reliability of operational inputs. Quality-based supplier selection and periodic performance evaluations can reduce the risk of delays in obtaining replacement vehicles, spare parts, and workshop services, thereby minimizing vehicle downtime and service disruptions. Consistent, long-term collaboration can also strengthen trust and coordination, facilitating joint problem-solving. From the RBV perspective, a reliable supplier network constitutes a relational resource that extends the company's operational capabilities. Based on this rationale, this study proposes the following hypothesis:

H4 : Supplier management is positively associated with operational performance.

2.7. Conceptual Framework and Hypotheses

The conceptual framework of this study is presented in Figure 1. Four TQM practices, namely organizational leadership, customer relationship, human resource management, and supplier management, are positioned as independent variables, while operational performance serves as the dependent variable. The arrows labeled H1–H4 represent the hypothesized partial relationships between each TQM practice and operational performance. In addition, H5 represents the hypothesis that the four TQM practices are jointly associated with operational performance when examined simultaneously in the regression model.

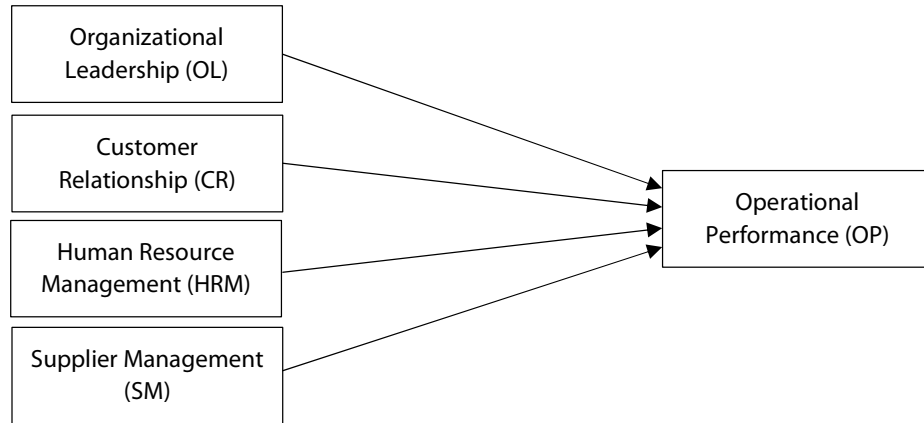


Figure 1. Conceptual Framework

The hypotheses tested in this study are formulated as follows:

- H1 : Organizational leadership is positively associated with operational performance.
- H2 : Customer relationship is positively associated with operational performance.
- H3 : Human resource management is positively associated with operational performance.
- H4 : Supplier management is positively associated with operational performance.
- H5 : Organizational leadership, customer relationship, human resource management, and supplier management are jointly and significantly associated with operational performance.

III. Research Method

This study adopts a quantitative approach with an explanatory design to examine the relationships between Total Quality Management (TQM) practices and operational performance at PT Pratama Mitra Sejati, a business-to-business (B2B) service company. The four TQM practices examined are organizational leadership, customer relationship, human resource management, and supplier management. The study employs a cross-sectional design, with primary data collected through structured questionnaires distributed to company employees and managers during the research period. Given its cross-sectional and observational design and its reliance on perceptual data, the relationships between variables are interpreted as statistical associations within a regression model rather than as evidence of causal relationships. Multiple linear regression is used to examine the partial associations between each TQM practice and operational performance, as well as the joint association of all four practices with operational performance. This approach provides empirical evidence regarding the TQM practices associated with the company's operational performance.

3.1. Research Design and Data Types

This study uses primary data collected directly from employees and managers of PT Pratama Mitra Sejati through structured questionnaires. The data reflect respondents' perceptions and experiences regarding the implementation of TQM practices and the company's operational performance. The primary data cover five main constructs: organizational leadership, customer relationship, human resource management, supplier and service partner management, and operational performance. Operational performance is measured in terms of operational process efficiency, service quality, timeliness of work completion, and work productivity. The use of primary data enables the collection of relevant, context-specific information aligned with the research objectives and the company's operational conditions.

3.2. Sample and Sampling Technique

This study employs non-probability sampling using a purposive sampling technique, whereby respondents are selected according to specific criteria aligned with the research objectives. This technique ensures that respondents have relevant experience and sufficient understanding of the company's TQM practices and operational performance. The respondent selection criteria are as follows:

- a. Employees or managers of PT Pratama Mitra Sejati.
- b. Direct involvement in the company's operational processes.
- c. Employment in the fleet management, building management, marketing, human capital and HSSE, or procurement department. The marketing department comprises two divisions, namely the marketing division and the accounts receivable division. These divisions are presented separately in the descriptive analysis (Table 4) because they perform different functions.
- d. A minimum tenure of one year.
- e. Willingness to participate in the study and complete the questionnaire in full.

The sample size was determined by considering the organizational context and the limitations of the accessible population. Hair et al. (2019) recommend a minimum ratio of five observations per independent variable, with an ideal ratio of 15 to 20 observations per independent variable. With four independent variables, the final sample of 52 respondents yields a ratio of 13 observations per independent variable. This exceeds the minimum threshold but falls below the recommended ideal range. Accordingly, the sample size is acknowledged as a limitation, and the findings should be interpreted cautiously, particularly when considering their generalizability to other organizational contexts. The sample size may provide adequate sensitivity for detecting medium to large effects but may be less sensitive to small effects. The target population comprises all employees and managers of PT Pratama Mitra Sejati who meet the purposive sampling criteria outlined above. However, the exact population size could not be determined because personnel data are confidential company information. The researcher therefore distributed the survey link via WhatsApp to staff in the Human Capital and HSSE department, who subsequently forwarded it to employees in the five relevant departments. This internal distribution channel enabled the survey link to reach both office-based and field-based personnel in the fleet management and building management departments, including drivers, mechanics, and technicians.

Nevertheless, because the survey was distributed through internal intermediaries and participation was voluntary, it cannot be confirmed that every eligible member of the population received the survey link. Consequently, the response rate cannot be calculated precisely. A total of 58 completed questionnaires were collected. Following data verification, six respondents were found to have less than one year of tenure and therefore did not meet the established purposive sampling criteria. These responses were excluded from the analysis, resulting in a final sample of 52 respondents. The demographic characteristics of the 52 respondents, including gender, age, educational level, position, department or division, and tenure, are presented in the Results section as part of the descriptive analysis. Given the unknown population size, the use of non-probability sampling, voluntary participation, and the relatively small sample size, the sample cannot be considered statistically representative of the company's entire workforce. The sampling process may also be subject to self-selection bias. Therefore, the findings should be interpreted as context-specific evidence from the company under investigation. Generalization to other organizations should be made with caution, and this limitation is discussed further in the Conclusion section.

3.3. Variable Measurement and Indicators

The research instrument comprises 20 statement items designed to measure five research variables, with four items assigned to each variable: organizational leadership, customer relationship, human resource

management, supplier management, and operational performance. The indicators were developed primarily based on the TQM framework proposed by Bytyçi et al. (2023) and supplemented with indicators from V. Singh et al. (2018), Sweis et al. (2016), and Aquilani et al. (2017) to reflect the operational characteristics of PT Pratama Mitra Sejati as a B2B service company. The indicators and their respective sources are presented in Table 1. Items derived from English-language references were translated into Indonesian, and their wording was simplified to facilitate understanding among respondents with different job levels and educational backgrounds, including field staff, while preserving the intended meaning of the constructs. Consequently, the scope of each construct is more concise than that of the original instruments. To establish content validity, the instrument underwent a qualitative review by two reviewers. The supervising lecturer served as the academic reviewer and assessed the alignment of the items with the construct definitions, while a member of PT Pratama Mitra Sejati's management served as the practitioner reviewer and evaluated the suitability of the wording for the company's operational context. However, this review did not involve calculating a content validity index, which is acknowledged as a limitation of the study.

Table 1. Variable Measurement and Indicators

Variable	Code	Indicator Statement	Source
Organizational Leadership	X1.1	Leadership provides clear guidance for work execution.	Bytyçi et al. (2023); V. Singh et al. (2018)
	X1.2	Leadership encourages employees to improve work quality.	
	X1.3	Leadership sets a good example in carrying out duties.	
	X1.4	Leadership is receptive to employees' feedback and suggestions.	
Customer Relationship	X2.1	The company consistently strives to understand customer needs.	Bytyçi et al. (2023); Sweis et al. (2016)
	X2.2	The company responds promptly to customer complaints.	
	X2.3	The company maintains good communication with customers.	
	X2.4	Customer satisfaction is the company's top priority.	
Human Resource Management (HRM)	X3.1	The company provides training to improve employee skills.	Bytyçi et al. (2023); V. Singh et al. (2018)
	X3.2	Employees are given opportunities to develop their abilities.	
	X3.3	Tasks are clearly allocated within the company.	
	X3.4	The company provides motivation to improve employee performance.	
Supplier Management	X4.1	The company maintains good relationships with suppliers.	Aquilani et al. (2017); Bytyçi et al. (2023)
	X4.2	Suppliers can provide goods and services that meet the company's needs.	
	X4.3	The company selects suppliers based on quality criteria.	
	X4.4	The company maintains consistent and sustainable collaboration with suppliers.	
Operational Performance	Y1	The company's operational processes run efficiently.	Bytyçi et al. (2023)
	Y2	The company provides high-quality services.	
	Y3	Work is completed on time.	
	Y4	The company's work productivity is high.	

3.4. Data Collection Procedure

Data were collected through a survey using a structured questionnaire containing the statement items for each variable listed in Table 1. All items were measured using a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). This scale was used to systematically assess respondents' perceptions of the company's TQM practices and operational performance. The response categories and their corresponding scores are presented in Table 2.

Table 2. Measurement Categories for Questionnaire Responses (Sugiyono, 2018)

Respondent's Answer	Score
Strongly Disagree (SD)	1
Disagree (D)	2
Neutral (N)	3
Agree (A)	4
Strongly Agree (SA)	5

The data collection procedure consisted of two main stages. The first stage involved instrument development and refinement. The initial questionnaire was reviewed by the supervising lecturer and subsequently pilot-tested with 30 respondents outside PT Pratama Mitra Sejati. Approximately half of the pilot respondents were management students specializing in operations, while the remainder were practitioners working in operations or the service sector. These respondents were excluded from the main research sample. The pilot test aimed to assess the readability, clarity, and preliminary suitability of the questionnaire and to identify items requiring refinement before the main survey. No items were removed based on the pilot test results; instead, the wording of several items was revised to improve clarity. The revised instrument was then reviewed by PT Pratama Mitra Sejati's management to ensure that the wording was appropriate for the company's operational context. Because the pilot respondents did not fully represent the characteristics of the target population, the pilot test focused on readability and item clarity rather than serving as the basis for the final validity and reliability assessments. The second stage involved distributing the revised questionnaire electronically to the research sample through Google Forms. The survey link was shared via WhatsApp and remained open for one week, from April 13 to 17, 2026 (Monday to Friday).

To ensure completeness, all questionnaire items in Google Forms were designated as mandatory, preventing the submission of incomplete responses. Responses were collected anonymously to reduce social desirability bias, which occurs when respondents provide answers they believe are socially expected. Because all questionnaire items were positively worded, the data were examined for uniform response patterns, commonly referred to as straight-lining. Nine respondents (17.3%) provided identical answers to all 20 items. These responses were retained because the respondents met all established sampling criteria. However, the robustness of the findings to this response pattern was examined through a sensitivity analysis, as reported in the Results section. The verified data were processed using SPSS version 27. To interpret the mean scores, five response categories were established using an interval width of 0.80, calculated as $(5 - 1)/5$. The resulting intervals and their corresponding categories are presented in Table 3. The validity and reliability tests reported in the Results section (Table 5) were conducted using the final sample of 52 respondents who met the established eligibility criteria.

Table 3. Intervals and Categories for Interpreting Respondents' Mean Scores (Sugiyono, 2018)

Mean Interval	Category
1.00–1.79	Very Poor
1.80–2.59	Poor
2.60–3.39	Fair
3.40–4.19	Good
4.20–5.00	Very Good

3.5. Data Analysis Methods

Data analysis techniques are used to process research data and draw conclusions (Sugiyono, 2018). In this study, the data were analyzed quantitatively using SPSS (Statistical Package for the Social Sciences), version 27. The analysis consisted of descriptive statistics and inferential statistical analysis.

a. Descriptive Analysis

Descriptive analysis provides an overview of the characteristics of the research data before inferential statistical tests are conducted. The analysis includes the mean, standard deviation, minimum and maximum values, and frequency distributions. In this study, descriptive analysis was used to summarize respondents' demographic characteristics, including gender, age, educational level, department or division, tenure, and position, as well as the distribution of responses for each research variable. The results provide an initial understanding of the data characteristics and respondents' perceptions of TQM practices and operational performance at PT Pratama Mitra Sejati.

b. Classical Assumption Tests

Before conducting multiple linear regression analysis, classical assumption tests were performed to assess whether the regression model met the relevant statistical assumptions (Ghozali, 2018). The tests conducted in this study were as follows:

a. Normality Test

The normality test examines whether the regression residuals follow a normal distribution. In this study, normality was assessed using the Kolmogorov-Smirnov (K-S) test. A significance value (Asymp. Sig., two-tailed) greater than 0.05 indicates that there is insufficient evidence to reject the null hypothesis of normality. Conversely, a significance value less than or equal to 0.05 indicates a statistically significant departure from normality (Ghozali, 2018).

b. Multicollinearity Test

The multicollinearity test assesses whether strong linear relationships exist among the independent variables in the regression model. Multicollinearity was evaluated using the variance inflation factor (VIF) and tolerance values. A VIF below 10 and a tolerance value above 0.10 were used as the criteria for indicating that multicollinearity was not a serious concern (Ghozali, 2018).

c. Heteroskedasticity Test

The heteroskedasticity test examines whether the variance of the regression residuals is constant across observations. In this study, the Glejser test was used to assess heteroskedasticity. If the significance value for each independent variable in the regression of the absolute residuals exceeds 0.05, there is insufficient statistical evidence of heteroskedasticity based on this test (Ghozali, 2018).

c. Multiple Linear Regression Analysis

Multiple linear regression analysis is used to examine the relationships between two or more independent variables and a single dependent variable (Ghozali, 2018). In this study, multiple linear regression was employed to examine the partial associations between the four TQM practices and operational performance at PT Pratama Mitra Sejati, as well as their joint association with operational performance. The regression model is expressed as follows:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + e$$

- Where:
- Y = Operational performance
- α = Constant
- $\beta_1, \beta_2, \beta_3, \beta_4$ = Regression coefficients of each variable
- X_1 = Organizational leadership
- X_2 = Customer relationship
- X_3 = Human resource management
- X_4 = Supplier management
- e = Error term

d. Hypothesis Testing

Hypothesis testing was conducted using three main statistical measures: the coefficient of determination (R^2), the simultaneous significance test (F-test), and the partial significance test (t-test).

a. Coefficient of Determination (R^2)

The coefficient of determination measures the proportion of variation in the dependent variable explained by the independent variables in the regression model. The R^2 value ranges from 0 to 1, with higher values indicating that the model explains a greater proportion of the variation in the dependent variable (Ghozali, 2018). This study also considers the adjusted R^2 , which accounts for the number of independent variables and the sample size, thereby reducing the tendency of R^2 to increase simply when additional predictors are included.

b. Simultaneous Significance Test (F-test)

The F-test assesses whether the independent variables are jointly associated with the dependent variable in the regression model. The null hypothesis is rejected if the calculated F-statistic exceeds the critical F-value or if the corresponding significance value is below 0.05. A statistically significant result indicates that the independent variables are jointly associated with the dependent variable, supporting H5 (Ghozali, 2018).

c. Partial Significance Test (t-test)

The t-test assesses the partial association between each independent variable and the dependent variable while controlling for the other independent variables in the model. An individual coefficient is considered statistically significant if the absolute value of its calculated t-statistic exceeds the critical t-value or if its corresponding significance value is below 0.05. The results of these tests are used to determine whether H1 through H4 are supported (Ghozali, 2018).

The classical assumption tests indicated that the regression residuals did not fully satisfy the normality assumption and that there was evidence of heteroskedasticity associated with one of the independent variables. Recent simulation evidence suggests that no single inferential method performs optimally under all conditions involving assumption violations, particularly in small samples. Specifically, bias-corrected and accelerated (BCa) confidence intervals based on case-resampling bootstrapping may be overly liberal, whereas heteroskedasticity-consistent HC3 standard errors may be conservative when the residuals are non-normally distributed (Rajh-Weber et al., 2025). To address these concerns, two complementary approaches were used to assess the robustness of the regression inferences. First, case-resampling bootstrapping was performed using 5,000 resamples to construct 95% BCa confidence intervals. This procedure estimates the sampling distribution of the regression coefficients through repeated resampling of the observed data. Second, HC3 heteroskedasticity-consistent standard errors were estimated to account for

potential heteroskedasticity. A hypothesis was considered supported when the corresponding 95% BCa confidence interval excluded zero and the HC3-based significance value was below 0.05. Agreement between these two approaches was interpreted as providing stronger evidence of the robustness of the findings. However, these procedures were used as complementary inferential approaches rather than as a means of eliminating the identified assumption violations or resolving limitations associated with sample size and model specification. Accordingly, the hypothesis-testing results should be interpreted with caution.

IV. Result and Discussion

This section presents the main findings obtained from the data analysis. The results are subsequently discussed in relation to the relevant theories and previous studies.

4.1. Respondent Profile

Data were collected through questionnaires distributed to employees and managers of PT Pratama Mitra Sejati who were directly involved in the company's operational processes. Of the questionnaires collected, 52 responses met the established purposive sampling criteria and were included in the analysis. The demographic characteristics of the respondents are presented in Table 4.

Table 4. Respondent Demographics

Measurement	Frequency	Percentage
Gender		
Male	40	76.9%
Female	12	23.1%
Total	52	100.0%
Age		
23-34 years	21	40.4%
35-44 years	18	34.6%
45-54 years	11	21.2%
>55 years	2	3.8%
Total	52	100.0%
Education Level		
Senior high school/vocational school or equivalent	5	9.6%
Diploma (D1/D2/D3)	6	11.5%
Bachelor's degree (S1)	39	75.0%
Master's degree (S2)	2	3.8%
Total	52	100.0%
Position		
Manager & Assistant Manager	12	23.1%
Staff/employees	37	71.2%
others (officers, contract employees).	3	5.8%
Total	52	100.0%
Department/Division		
Marketing	8	15.4%
Human Capital & HSSE	9	17.3%
Procurement	8	15.4%
Account Receivable	5	9.6%
Fleet Management	13	25.0%
Building Management	9	17.3%
Total	52	100.0%
Tenure		
1-3 years	10	19.2%

4-6 years	6	11.5%
>6 years	36	69.2%
Total	52	100.0%

As shown in Table 4, most respondents were male (76.9%), aged 23–34 years (40.4%), and held a bachelor's degree (S1) (75.0%). In terms of position, the majority were staff or employees (71.2%). Fleet Management accounted for the largest proportion of respondents by department or division (25.0%). Regarding tenure, 69.2% of respondents had worked for the company for more than six years. This substantial proportion of experienced employees provides a useful basis for examining respondents' perceptions of TQM practices and operational performance, as they have had considerable exposure to the company's operational activities.

4.2. Validity and Reliability Test Results

Table 5. Summary of Validity and Reliability Test Results

Variable	Calculated r Range	Critical r Value	Cronbach's Alpha	Result
Organizational Leadership	0.726–0.892	0.273	0.918	Valid and reliable
Customer Relationship	0.449–0.811	0.273	0.831	
Human Resource Management	0.698–0.744	0.273	0.870	
Supplier Management	0.602–0.791	0.273	0.855	
Operational Performance	0.668–0.787	0.273	0.869	

As presented in Table 5, all measurement items were considered valid because their corrected item-total correlation coefficients exceeded the critical r value of 0.273 ($(n = 52)$, $(df = 50)$, $(\alpha = 0.05)$). This indicates that each item demonstrated an adequate item-total correlation with the other items measuring the same variable. The validity and reliability tests were conducted using the final research sample of 52 respondents, following the refinement of the instrument through a pilot test involving 30 respondents outside PT Pratama Mitra Sejati, as described in the Data Collection Procedure section. The content validity of the instrument was further supported by the indicator development process, which drew on the TQM framework and measurement indicators from previous studies (see Table 1). In addition, Cronbach's alpha coefficients for all five variables exceeded the commonly used threshold of 0.70, ranging from 0.831 to 0.918. These results indicate satisfactory internal consistency. Overall, the measurement items demonstrated acceptable item-total correlations and internal consistency, supporting their use in subsequent analyses.

4.3. Descriptive Statistics of the Research Variables

Next, explicitly state the theoretical framework guiding your study, ensuring it aligns with your objectives. Describe the underlying principles, concepts, or assumptions that support your research questions or model. This theoretical grounding adds depth and clarity to your analysis and justifies the hypotheses you propose.

Table 6. Descriptive Statistics of the Research Variables

Variable	N	Min.	Max.	Mean	Std. Dev.	Category
Organizational Leadership	52	2.75	5.00	4.24	0.57	Very Good
Customer Relationship		3.25	5.00	4.45	0.45	Very Good
Human Resource Management		2.75	5.00	4.21	0.60	Very Good
Supplier Management		3.00	5.00	4.22	0.48	Very Good
Operational Performance		2.75	5.00	4.17	0.49	Good

As shown in Table 6, the five research variables fall within the Good to Very Good categories. Customer relationship has the highest mean score (4.45), followed by organizational leadership (4.24), supplier management (4.22), and human resource management (4.21). Meanwhile, operational performance has the lowest mean score (4.17) and falls within the Good category. The relatively low standard deviations, ranging from 0.45 to 0.60, indicate that respondents' assessments of the four TQM components and operational performance are relatively consistent. Overall, these findings suggest that TQM practices at PT Pratama Mitra Sejati are perceived positively, although operational performance receives a slightly lower assessment than the TQM components.

4.4. Results of the Classical Assumption Tests

Table 7. Summary of the Classical Assumption Tests

Test	Result	Conclusion
Normality	K-S Sig. < 0.001	The residuals are not normally distributed.
Multicollinearity	Tolerance = 0.314–0.581; VIF = 1.722–3.188	No multicollinearity was detected.
Heteroskedasticity	X1 = 0.745; X2 = 0.021; X3 = 0.228; X4 = 0.678	X2 indicates heteroskedasticity.

The Kolmogorov–Smirnov normality test yielded a significance value below 0.05 (Sig. < 0.001), indicating that the regression residuals do not satisfy the normality assumption. This result is reported transparently as a limitation of the model rather than being interpreted as evidence of normally distributed residuals. The multicollinearity test shows that the tolerance values for all independent variables range from 0.314 to 0.581, exceeding the minimum threshold of 0.10, while the VIF values range from 1.722 to 3.188, remaining below the threshold of 10. These results indicate that multicollinearity is not a concern in the regression model. Meanwhile, the Glejser test indicates that organizational leadership, human resource management, and supplier management do not exhibit statistically significant evidence of heteroskedasticity. However, customer relationship has a significance value of 0.021, which is below 0.05, indicating the presence of heteroskedasticity associated with this variable. Consequently, the statistical inferences concerning this variable should be interpreted with caution. To strengthen the robustness of the statistical inferences in light of the non-normal residual distribution and the evidence of heteroskedasticity, hypothesis testing was supplemented with a bootstrapping procedure involving 5,000 resamples, the bias-corrected and accelerated (BCa) method, and 95% confidence intervals. The results are presented in Table 8. Because all variables were measured using self-reported questionnaires obtained from the same source, Harman's single-factor test was conducted using unrotated factor analysis of the 20 indicator items to assess the potential for common method bias. The results indicate that the first factor accounts for 50.63% of the total variance. As this proportion slightly exceeds the conventional threshold of 50%, the possibility of common method bias cannot be fully ruled out. Therefore, the findings should be interpreted with appropriate caution, and this limitation is discussed further in the Conclusion section.

4.5. Multiple Linear Regression Analysis and Hypothesis Testing Results

This section presents the results of the multiple linear regression analysis and the tests of hypotheses H1 to H5. The analysis was supplemented by a bootstrapping procedure involving 5,000 resamples, the bias-corrected and accelerated (BCa) method, and 95% confidence intervals because the model residuals did not satisfy the normality assumption and one independent variable exhibited evidence of heteroskedasticity (see Table 7).

Table 8. Hypothesis Testing Results Using Bootstrapping (H1–H4)

Hypothesis	Relationship	B	Beta (β)	t	Sig.	Boot SE	95% Boot CI (BCa)	Decision
H1	Organizational Leadership → Operational Performance	0.274	0.319	2.710	0.009	0.113	0.044–0.495	Supported
H2	Customer Relationship → Operational Performance	0.065	0.061	0.653	0.517	0.127	–0.191–0.290	Not Supported
H3	Human Resource Management → Operational Performance	0.258	0.315	2.481	0.017	0.110	0.024–0.466	Supported
H4	Supplier Management → Operational Performance	0.357	0.350	3.731	<0.001	0.116	0.109–0.598	Supported

As shown in Table 8, organizational leadership ($B = 0.274$; $t = 2.710$; $\text{Sig.} = 0.009$; BCa 95% CI = 0.044–0.495), human resource management ($B = 0.258$; $t = 2.481$; $\text{Sig.} = 0.017$; BCa 95% CI = 0.024–0.466), and supplier management ($B = 0.357$; $t = 3.731$; $\text{Sig.} < 0.001$; BCa 95% CI = 0.109–0.598) have positive and statistically significant relationships with operational performance. The bootstrap confidence intervals for all three variables exclude zero, supporting H1, H3, and H4, respectively. Based on the standardized beta coefficients, supplier management has the largest coefficient ($\beta = 0.350$), followed by organizational leadership ($\beta = 0.319$) and human resource management ($\beta = 0.315$), although the differences among these coefficients are relatively small. Customer relationship is the only variable that does not have a statistically significant relationship with operational performance ($B = 0.065$; $t = 0.653$; $\text{Sig.} = 0.517$). Its bootstrap confidence interval includes zero (BCa 95% CI = –0.191–0.290); therefore, H2 is not supported. The conventional t-test and bootstrap results lead to consistent conclusions across all four independent variables, suggesting that the findings are reasonably stable despite the previously identified non-normality and evidence of heteroskedasticity. Additional robustness checks further support these findings. A supplementary bootstrap analysis using 2,000 resamples produced confidence intervals and significance conclusions similar to those obtained from the 5,000-resample analysis. The estimation using HC3 robust standard errors also yielded consistent results: organizational leadership ($p = 0.023$), human resource management ($p = 0.038$), and supplier management ($p = 0.006$) remained statistically significant, whereas customer relationship remained non-significant ($p = 0.623$). Similarly, a sensitivity analysis excluding the nine respondents who exhibited uniform response patterns ($n = 43$) produced the same overall pattern. Organizational leadership ($p = 0.026$), human resource management ($p = 0.032$), and supplier management ($p = 0.005$) remained significant, while customer relationship remained non-significant ($p = 0.500$). The R^2 value in this reduced sample was 0.695.

The simultaneous test indicates that the four TQM components jointly explain a statistically significant proportion of the variation in operational performance ($F = 37.726$; $df = 4, 47$; $\text{Sig.} < 0.001$); therefore, H5 is supported. The R^2 value of 0.763 indicates that 76.3% of the variation in respondents' perceptions of operational performance can be explained jointly by organizational leadership, customer relationship, human resource management, and supplier management. The adjusted R^2 value of 0.742 accounts for the number of independent variables in the model. Based on the adjusted R^2 , approximately 25.8% of the variation remains unexplained by the model. This finding is consistent with the perspective that TQM may be understood as a system of complementary practices, although the regression results alone do

not establish complementarity among these practices. The relatively high R^2 value should also be interpreted cautiously. Because the independent and dependent variables were measured using self-reported data from the same respondents at a single point in time, some of the shared variance may be attributable to the measurement method, commonly referred to as common method variance. This concern is consistent with the Harman's single-factor test result, in which the first factor accounted for 50.63% of the total variance. Furthermore, the R^2 value decreased to 0.695 when the nine respondents with uniform response patterns were excluded, suggesting that these response patterns may have influenced the model's explanatory power. Accordingly, the R^2 value should be interpreted as an indication of the model's ability to explain perceived operational performance within this sample, rather than as a precise estimate of the contribution of TQM practices to the company's actual operational performance. The hypothesis-testing decisions were based primarily on the BCa 95% bootstrap confidence intervals and were cross-checked using HC3 robust standard errors, while the significance values from conventional ordinary least squares (OLS) regression were reported for comparison. The three approaches produced consistent conclusions for all hypotheses tested.

4.6. Discussion

a. Organizational Leadership and Operational Performance

Organizational leadership has a positive and statistically significant relationship with operational performance in the research model; therefore, H1 is supported. This finding is consistent with V. Singh et al. (2018) and Bashar et al. (2024), both of whom identify management commitment and involvement as key elements of successful TQM implementation. The present study extends these findings to B2B service companies operating in the vehicle rental and building management sectors. From a theoretical perspective, leadership serves as a primary driver of the TQM system because leaders can translate the organizational quality vision into clear work directives, allocate the necessary resources, and foster a culture of continuous improvement across all organizational levels. In the context of PT Pratama Mitra Sejati, which manages thousands of vehicles and hundreds of drivers, this role is particularly important. The implementation of service quality standards can be strengthened through clear direction, support for quality improvement initiatives, and leaders' openness to employee input. Consequently, strengthening quality-oriented leadership should remain a priority for the company in its efforts to achieve sustainable improvements in operational performance.

b. Customer Relationship and Operational Performance

The multiple regression results reveal a different pattern for customer relationship, which does not have a statistically significant partial relationship with operational performance; therefore, H2 is not supported. This finding differs from Bytyçi et al. (2023), who reported a positive relationship between customer relationship and operational performance. However, it is consistent with Alsaqer et al. (2024), who found that customer focus was not statistically significant in a model that included other TQM practices, and with Saharuddin et al. (2026), who reported that customer satisfaction did not have a significant partial relationship with operational performance in an Indonesian company, whereas internally oriented TQM practices did. The bivariate correlation analysis in the present study nevertheless indicates a positive relationship between customer relationship and operational performance. However, after the other three independent variables are controlled for in the regression model, the unique contribution of customer relationship is no longer statistically significant. Several possible explanations may account for this finding. First, this result may be associated with the distribution of respondents' answers. Customer relationship has the highest mean score (4.45) and the lowest standard deviation (0.45) among all research variables, suggesting that respondents generally perceive this practice positively and assess it relatively consistently. The limited variation in responses may reduce the variable's ability to explain differences in operational performance across respondents, even when the practice itself is rated favorably. Second, in a B2B context such as PT Pratama Mitra Sejati, relationships with corporate clients are governed by contractual

arrangements and service-level agreements (SLAs) established at the beginning of the business relationship. Consequently, the quality of these relationships may not always be directly reflected in day-to-day internal operational performance indicators.

Third, customer relationship quality may not be directly reflected in the internal operational performance indicators examined in this study, namely process efficiency, service quality, timeliness, and work productivity. Instead, its effects may be more closely associated with customer-oriented outcomes, such as client satisfaction and loyalty. Fourth, the relationship between customer relationship and operational performance may be indirect, operating through mediating variables such as process quality, service quality, or customer satisfaction that were not explicitly examined in the present model. This possibility is consistent with Dash (2024), whose findings from SaaS companies in India indicate that customer orientation partially mediates the relationship between TQM and company performance. This explanation also aligns with the theoretical argument presented in Section 2.1, which suggests that customer relationship, as an externally oriented practice, may be more likely to influence internal operational performance indirectly. Finally, customer relationship may be associated with other internal TQM practices, making its unique contribution to operational performance more difficult to distinguish because of overlapping explanatory variance. Nevertheless, this explanation should be treated cautiously because the VIF value for customer relationship is among the lowest in the model ($VIF = 1.722$), while two variables with higher VIF values exhibit statistically significant relationships with operational performance. None of these explanations was empirically tested in the present study; therefore, they should be regarded as possible interpretations rather than established conclusions. Accordingly, the lack of support for H2 does not necessarily imply that customer relationship is unimportant to the company. Rather, it suggests that its relationship with operational performance may be indirect or may not be distinguishable from the contributions of other TQM practices within the current model. These findings provide opportunities for future research to examine the mediating roles of process quality, service quality, and customer satisfaction in the B2B service context.

c. Human Resource Management and Operational Performance

Human resource management has a positive and statistically significant relationship with operational performance; therefore, H3 is supported. This finding is consistent with Bashar et al. (2024), who found that training and development and employee involvement are associated with employee performance in the banking service sector. From a theoretical perspective, this result aligns with the TQM principle that positions human resources as a key driver of continuous quality improvement. Trained and motivated employees are better equipped to implement work standards consistently and contribute to operational effectiveness. In service companies such as PT Pratama Mitra Sejati, employees play a direct role in delivering services to clients. Therefore, training, competency development, clear task allocation, and work motivation can help ensure consistent task execution and compliance with operational standards. These findings suggest that continuous investment in employee training and development should remain a priority for the company to maintain stable operational performance. The results are also consistent with the recent study by Nong et al. (2024) on logistics companies, which found that employee competence and competence–job fit have significant effects on business performance. This finding is particularly relevant to PT Pratama Mitra Sejati, a service company that relies on the competencies of operational personnel, including drivers and fleet technicians.

d. Supplier Management and Operational Performance

Among the four TQM components, supplier management has the highest standardized beta coefficient for operational performance ($\beta = 0.350$); therefore, H4 is supported. However, the difference between this coefficient and those of organizational leadership and human resource management is relatively small. This finding is consistent with Bytyçi et al. (2023), who also identified supplier management as the strongest predictor of operational performance in their research context. From a theoretical perspective, supplier management plays an important role in TQM because input quality and supply chain reliability can help maintain the consistency of organizational processes and outputs. In the context of PT Pratama Mitra

Sejati, which relies heavily on suppliers and supporting partners for fleet and building facility management, supplier reliability is closely related to vehicle availability, fleet maintenance, and spare parts availability. These findings suggest that selecting suppliers based on quality criteria, periodically evaluating supplier performance, and maintaining long-term cooperative relationships should be among the company's priorities for improving operational performance. This result is also consistent with Yuono and Santosa (2024), who found that supplier relationships and adaptation are associated with performance in Indonesian restaurant businesses, partly through supply chain efficiency and lower operational costs.

e. Simultaneous Relationship Between the Four TQM Components and Operational Performance

The simultaneous test indicates that the four TQM components are jointly and statistically significantly associated with operational performance; therefore, H5 is supported. A substantial proportion of the variation in operational performance within this sample can be explained by the combined effects of organizational leadership, customer relationship, human resource management, and supplier management. This finding is consistent with the perspective that TQM is better understood as a system of complementary practices rather than as the implementation of a single practice in isolation. The pattern of the partial results, in which internally oriented practices have statistically significant relationships with operational performance while customer relationship does not, is also consistent with the resource-based view (RBV) and contingency theory perspectives discussed in Section 2.1. These perspectives suggest that the relationships between individual TQM practices and operational performance may vary depending on the organizational and business context, including the B2B service environment. Nevertheless, the R^2 value should be interpreted cautiously because this study relies on cross-sectional perceptual data collected from a single source. The possibility of common method bias cannot be fully ruled out, the model residuals do not satisfy the normality assumption, and one independent variable exhibits evidence of heteroskedasticity (see Table 7). Accordingly, the R^2 value should not be interpreted as a direct measure of the causal contribution of TQM practices to operational performance.

V. Conclusion

This study found that organizational leadership, human resource management, and supplier management have positive and statistically significant relationships with the operational performance of PT Pratama Mitra Sejati, whereas customer relationship does not have a statistically significant partial relationship with operational performance. Simultaneously, the four TQM practices are jointly and significantly associated with operational performance. The model yields an R^2 of 0.763 and an adjusted R^2 of 0.742. However, these values should be interpreted cautiously because the study relies on cross-sectional perceptual data collected from a single source. Supplier management has the highest standardized beta coefficient among the four TQM components, although the difference between its coefficient and those of organizational leadership and human resource management is relatively small. The findings are consistent across conventional t-tests, bootstrapping, and HC3 robust standard errors. The finding concerning customer relationship represents a distinctive contribution of this study. Although customer relationship received the highest mean score among the TQM practices examined, it did not have a statistically significant relationship with operational performance after the other three TQM components were controlled for in the regression model. This result suggests that individual TQM practices may differ in their relationships with operational performance in B2B service companies. Therefore, the mechanisms linking customer relationship to operational performance warrant further investigation, particularly through tests of potential mediating variables. From a managerial perspective, the company should consider prioritizing supplier relationship management, maintaining quality-oriented leadership, and developing employee competencies, as all three practices demonstrate positive and statistically significant relationships with operational performance. Customer orientation should nevertheless remain an integral part of the company's TQM philosophy, despite the absence of a significant partial relationship in this study.

Several limitations should be acknowledged. First, the relatively small sample size, non-probability sampling approach, single-company setting, unknown population size, and potential self-selection bias limit the generalizability of the findings. Second, the cross-sectional design and the use of self-reported measures from a single source introduce the possibility of common method bias. Harman's single-factor test showed that the first factor accounted for 50.63% of the total variance, slightly exceeding the conventional 50% threshold. Therefore, the possibility of common method bias cannot be ruled out, and the findings should be interpreted cautiously. Third, the model residuals did not satisfy the normality assumption, and the heteroskedasticity test indicated a potential problem for one independent variable. Fourth, operational performance was measured using respondents' perceptions of process efficiency, service quality, timeliness, and work productivity, without incorporating the cost dimension or objective company performance data. Consequently, the operational performance construct examined in this study captures only selected dimensions of performance. Fifth, the instrument's content validity was assessed qualitatively by academic and practitioner reviewers without calculating a content validity index. In addition, nine respondents exhibited uniform response patterns, although the sensitivity analysis indicated that excluding these respondents did not change the overall hypothesis-testing conclusions. Finally, the observational and cross-sectional nature of the study precludes causal conclusions. Accordingly, the relationships identified should be interpreted as associations within the research model rather than as evidence of causality. Future research should employ larger samples, longitudinal research designs, and measures obtained from different sources to reduce the risk of common method bias. Researchers should also incorporate more objective performance indicators, including cost-related measures, and consider robust estimation methods suited to the characteristics of the data. In addition, future studies should examine the potential mediating roles of process quality, service quality, and customer satisfaction in the relationship between customer relationship and operational performance, particularly in B2B service settings.

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