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EFFECT OF MARKET ORIENTATION ON THE ORGANIZATIONAL EFFICIENCY OF THE WATER AND SANITATION CORPORATION IN RWANDA

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ABSTRACT

This study investigates the effect of market orientation on the organizational efficiency of the Water and Sanitation Corporation (WASAC) in Rwanda, addressing a critical gap in public utility management literature by examining how customer-centric, competitor-aware, and interfunctionally coordinated practices influence operational performance in a developing economy context. Utilizing a quantitative research design with data collected from 112 WASAC staff and service users, the study employed regression and ANOVA analyses to assess the relationship between market orientation—operationalized through cost control, anticipation/prediction, and product development—and organizational efficiency, measured via productivity metrics, service delivery time, and customer satisfaction. Results revealed a strong, statistically significant positive relationship ($\beta = .692$, $p < .001$), with market orientation accounting for 47.9% of the variance in organizational efficiency ($R^2 = .479$, $F(1, 110) = 100.984$, $p = .000$). These findings confirm that when WASAC institutionalizes market-oriented practices—such as real-time customer feedback systems, demand forecasting, and service innovation—it achieves measurable gains in efficiency, cost recovery, and public trust. The study extends existing literature by demonstrating that market orientation is not only compatible with public sector mandates but is, in fact, a catalyst for transforming inefficient utilities into responsive, sustainable, and high-performing institutions. The implications offer actionable insights for policymakers and utility managers across Sub-Saharan Africa seeking to improve service delivery through strategic management reform.

Keywords: Market Orientation, Organizational Efficiency, Water and Sanitation Corporation (WASAC), Rwanda

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BACKGROUND OF THE STUDY

Globally, the integration of market-oriented practices into public utilities has gained momentum as governments seek to enhance service delivery efficiency while maintaining equity and sustainability. In an era of increasing urbanization and climate-induced water stress, organizations responsible for water and sanitation are under pressure to adopt customer-centric models that improve responsiveness, reduce waste, and optimize resource allocation. According to World Bank (2022), market orientation in public utilities—defined as the systematic alignment of operations with user needs, competitive intelligence, and interdepartmental collaboration—has been linked to a 15–25% improvement in operational efficiency across 47 developing and middle-income countries. Similarly, the United Nations Water (2023) report emphasizes that utilities embracing market orientation principles demonstrate higher levels of financial sustainability and service reliability, particularly in contexts where public funding is constrained. These global trends underscore the relevance of market orientation not merely as a business strategy but as a governance innovation for public service delivery.

In the United States, water utilities have long operated under a hybrid model that blends market mechanisms with public oversight, resulting in high levels of efficiency and technological adoption. Many municipal utilities, such as those in Los Angeles and Chicago, utilize customer segmentation, demand forecasting, and performance-based contracting to align service delivery with consumer expectations (Gleick & Palaniappan, 2021). Furthermore, the Environmental Protection Agency (EPA, 2023) reports that utilities employing market-oriented practices—including real-time metering, dynamic pricing, and customer feedback platforms—achieve up to 30% greater reductions in non-revenue water compared to traditional models. Concurrently, the American Water Works Association (AWWA, 2022) highlights that utilities with strong market orientation cultures report higher levels of employee engagement and innovation, which indirectly enhance organizational efficiency. These findings illustrate how market orientation, even within a highly regulated public sector, can drive systemic improvements in service delivery and financial performance.

China's approach to water utility reform has evolved rapidly over the past two decades, transitioning from state-dominated monopolies to market-influenced public-private partnerships. The Chinese government, through its 14th Five-Year Plan (2021–2025), explicitly encourages water utilities to adopt customer-oriented management models to improve efficiency and reduce leakage (Zhang et al., 2022). Cities like Shanghai and Shenzhen have implemented smart water grids that integrate real-time consumer data, predictive maintenance, and automated billing systems, leading to a 22% decline in non-revenue water between 2018 and 2023 (Liu & Wang, 2023). Moreover, market orientation is increasingly embedded in performance evaluations of utility managers, linking bonuses to customer satisfaction metrics rather than purely technical outputs. This shift reflects a broader policy trend in China toward “efficiency-driven governance,” where market principles are selectively applied to enhance public service outcomes without abandoning state control (Chen & Zhao, 2022).

In Sub-Saharan Africa, where over 300 million people lack access to safely managed water services, the adoption of market orientation in water utilities remains inconsistent but increasingly recognized as critical for scalability and sustainability (WHO & UNICEF, 2023). While many utilities are constrained by underfunding and weak institutional capacity, progressive entities like the Lagos Water Corporation and the National Water Supply and Drainage Board in Uganda have begun piloting customer feedback systems and performance benchmarks aligned with market principles (Adeyemi et al., 2022). A World Bank (2023) assessment of 15 African utilities found that those with formal market orientation structures experienced a 40% faster response time to service complaints and 20% higher revenue collection rates. The African Development Bank (AfDB, 2022) further argues that market orientation, when adapted to local socio-political contexts, can serve as a catalyst for institutional transformation, helping utilities move from crisis management to proactive service planning.

South Africa's water utilities, particularly those under the Department of Water and Sanitation, have faced severe challenges including infrastructure decay, corruption, and declining service quality. However, recent reforms in municipalities like Cape Town and Tshwane have demonstrated the potential of market orientation to restore efficiency. Cape Town's post-drought water management strategy, which incorporated demand-side pricing, public awareness campaigns, and real-time consumption monitoring, led to a 50% reduction in per capita usage and improved revenue recovery (Molapo & Mokgokong, 2022). Similarly, the Tshwane Metropolitan Municipality implemented a customer-centric service charter in 2021, linking utility performance indicators to citizen satisfaction surveys, resulting in a 34% increase in payment compliance within 18 months (Mabaso & Nkosi, 2023). These initiatives reflect a growing recognition that market orientation is not incompatible with public ownership but can, in fact, strengthen accountability and service delivery in resource-constrained environments.

Kenya's water sector has seen notable progress in institutionalizing market-oriented practices through the Water Services Regulatory Board (WASREB), which mandates utilities to adopt customer service standards and publish performance reports annually (WASREB, 2023). Utilities such as Nairobi Water and Sewerage Company have integrated digital payment platforms, SMS-based complaint systems, and community liaison officers, resulting in a 28% reduction in service complaints and a 19% increase in cost recovery (Kariuki & Omondi, 2022). Furthermore, research by Mwangi and Mugo (2023) reveals that utilities with formal market orientation frameworks in Kenya exhibit higher levels of staff motivation and interdepartmental collaboration, which directly correlate with improved operational efficiency. The Kenyan experience demonstrates that even in decentralized governance systems, regulatory enforcement combined with market-sensitive management can yield measurable improvements in water service delivery, particularly in rapidly urbanizing areas.

In Rwanda, the Water and Sanitation Corporation (WASAC) has emerged as a regional leader in applying market-oriented principles within a public utility context. Under the National Strategy for Transformation and Vision 2050, WASAC has institutionalized customer feedback loops, digital billing systems, and performance-based incentives for field staff, contributing to a drop in non-revenue water from 42% in 2018 to 28% in 2023 (Ministry of Infrastructure, 2023). A recent study by Niyonzima and Uwimana (2024) found that WASAC's adoption of market orientation significantly improved service responsiveness, with 87% of customers reporting satisfaction with complaint resolution times—a 35% increase since 2020. Moreover, the utility's integration of market intelligence into infrastructure planning, as documented by Rutayisire et al. (2023), has enabled more targeted investments in peri-urban areas, enhancing both equity and efficiency. These developments position Rwanda as a compelling case study for how market orientation, when contextualized within strong governance and political will, can transform public utility performance in low-income settings.

Statement of the Problem

Despite significant progress in expanding access to water and sanitation services, the Water and Sanitation Corporation (WASAC) in Rwanda continues to face persistent challenges related to organizational inefficiency, particularly in service delivery, revenue collection, and infrastructure maintenance. As of 2023, WASAC reported that non-revenue water (NRW)—water lost through leaks, theft, or inaccurate metering—remained as high as 28% across its service areas, exceeding the World Bank's recommended benchmark of 15% for efficient utilities (Ministry of Infrastructure, 2023). Additionally, only 74% of connected households paid their bills on time, undermining financial sustainability and limiting reinvestment in system upgrades (Rwanda Utilities Regulatory Authority [RURA], 2023). Service interruptions remain frequent, with urban customers experiencing an average of 6.3 hours of water outage per week, while rural areas receive water for only two days per week in some districts (World Bank, 2022). These inefficiencies are not merely technical but reflect deeper organizational shortcomings in responsiveness, interdepartmental coordination, and customer focus—key dimensions of market orientation. Without a strategic shift toward more market-oriented

practices, WASAC risks failing to meet the targets of Rwanda's National Strategy for Transformation (NST1), which aims for universal access to clean water by 2024 and improved service reliability by 2030 (Government of Rwanda, 2020).

While several studies have explored aspects of water utility performance in Rwanda and sub-Saharan Africa, critical gaps remain in understanding how market orientation specifically influences organizational efficiency in public utilities like WASAC. First, Niyonzima and Uwimana (2024) assessed customer satisfaction at WASAC but did not analyze how internal market orientation culture affects operational outcomes such as NRW reduction or cost recovery. Second, Rutayisire et al. (2023) examined infrastructure planning but overlooked the role of competitor intelligence and cross-functional collaboration—core components of market orientation—in enhancing decision-making. Third, Mabaso and Nkosi (2023), in their study of South African utilities, established a link between market orientation and payment compliance but did not contextualize findings for low-income, post-conflict settings like Rwanda. Fourth, Kariuki and Omondi (2022) focused on digital tools in Kenyan utilities without investigating how these tools integrate into a broader market-oriented strategy. Finally, Zhang et al. (2022), while analyzing China's smart water systems, assumed high technological capacity, making their models less transferable to resource-constrained environments. Collectively, these studies fail to provide a comprehensive framework linking market orientation dimensions—customer orientation, competitor awareness, and inter-functional coordination—to measurable efficiency indicators within Rwanda's unique institutional and socio-economic context.

LITERATURE REVIEW

Theoretical Literature on Market Orientation

Market orientation is a corporate philosophy that emphasizes the identification and satisfaction of consumer wants and preferences as the primary emphasis of organizational strategy. It entails a methodical gathering, analysis, and distribution of market intelligence regarding customers, competitors, and the wider market landscape, which guides decision-making and strategic formulation (Kohli & Jaworski, 2020). The idea is considered a vital factor in organizational effectiveness and comprises three essential components: customer orientation, competitor orientation, and interfunctional coordination (Narver & Slater, 2020). Market orientation is pertinent across diverse sectors, including manufacturing, services, and public institutions, where comprehending and addressing stakeholder needs can improve efficiency and service delivery.

Generally speaking, market orientation is comprised of three main elements: interfunctional coordination, competitor orientation, and customer orientation. Customer orientation is the ability of a business to understand and satisfy the needs of its clients, which is crucial for fostering client satisfaction and loyalty (Jaworski & Kohli, 2018). Competitor orientation, conversely, emphasizes comprehending the strategies and competencies of existing and prospective competitors. This comprehension enables firms to foresee and react to competitors' actions efficiently. Finally, interfunctional coordination denotes the collaboration and alignment of several divisions within an organization to provide enhanced value to clients (Narver & Slater, 2020). The successful execution of these elements guarantees that the organization operates cohesively towards shared objectives informed by market knowledge.

Studies have repeatedly demonstrated a favorable correlation between market orientation and organizational effectiveness across diverse industries and circumstances. Kumar et al. (2021) discovered that firms exhibiting a high level of market orientation typically attain enhanced performance regarding profitability, customer happiness, and market share. This link is ascribed to the capacity of market-oriented organizations to comprehend and predict market changes more effectively, address customer needs swiftly, and distinguish themselves from competitors. Market orientation in the public sector has been associated with enhanced service delivery and stakeholder satisfaction, underscoring its significance beyond the private sector

(Osuagwu, 2020). Consequently, embracing a market orientation strategy is both advantageous and crucial for enduring competitive advantage and expansion.

The advantages of market orientation are extensively proven, although their execution presents obstacles. Key challenges to attaining a fully market-oriented approach include organizational culture, resistance to change, insufficient resources, and inadequate market intelligence tools (Kirca et al., 2015). Furthermore, coordinating various functional units within an organization towards a market-oriented strategy necessitates robust leadership and efficient communication (Jaworski & Kohli, 2016). Public institutions have exacerbated obstacles due to bureaucratic frameworks and the necessity to reconcile diverse stakeholder interests. Confronting these difficulties necessitates a strategic dedication to cultivating a market-oriented culture, investing in market research, and facilitating cross-functional collaboration.

The ever-changing market environment of today requires ongoing adaptation and innovation in market orientation techniques. The emergence of digital technologies, big data, and artificial intelligence provides firms with unparalleled opportunity to improve their market orientation via sophisticated data analytics and immediate customer insights (Chari et al., 2020).

Resource Based Theory

According to Resource-Based Theory (RBT), a company's strengths lie in its resources and competencies, which are key to outperforming the competition (Barney, 2021). Market orientation is an invaluable intangible asset that can improve organizational efficiency in the setting of public institutions, such as Rwanda's Water and Sanitation Corporation (WASAC). Understanding, responding to, and anticipating stakeholder requirements and market conditions is what an organization means when they are market oriented (Narver & Slater, 2020). Public organizations like WASAC can benefit from a market orientation in terms of operational efficiency and service delivery by following the guidelines laid out by RBT, which center on making the most of internal resources.

According to Jaworski and Kohli (2018), businesses that are market-oriented make sure they respond quickly to consumer demands, rival moves, and market changes. WASAC can enhance its organizational efficiency and service delivery by aligning its internal resources to meet the requirements of its clients, mostly enterprises and residents. According to research (Akman & Yilmaz, 2018), public companies with a focus on the market are more inclined to enhance operational performance by using strategic approaches that are in line with their core strengths. This alignment allows WASAC to efficiently allocate resources such as human capital, technology, and financial investments to areas that maximize stakeholder satisfaction and operational efficiency.

In line with RBT's focus on the strategic utilization of VRIN resources, the successful execution of market orientation in WASAC is in line with this framework (Barney, 2021). As a VRIN resource, market orientation can help WASAC stand out from the competition by revealing hidden information about client wants and needs. This differentiation is critical for public sector efficiency, as it allows for targeted service delivery that minimizes waste and optimizes resource use (Menguc & Auh, 2016). For instance, WASAC's initiatives that leverage customer feedback and engagement can lead to more focused service development, reducing unnecessary costs associated with poorly aligned strategies.

Furthermore, RBT highlights that organizational efficiency can be achieved when there is a continuous investment in capabilities that support market orientation, such as training, technology adoption, and data analytics (Barney & Clark, 2017). In the case of WASAC, investing in customer relationship management systems and employee training can enhance the institution's ability to respond promptly to market signals. This proactive approach to market orientation not only leads to better resource utilization but also enhances the institution's reputation for reliability and responsiveness, which are key indicators of efficiency in public service delivery (Slater & Narver, 2015).

The implementation of RBT at WASAC Rwanda can be linked with market orientation by concentrating on the manner in which the organization makes use of its internal resources, which include qualified staff, technological infrastructure, and institutional knowledge, in order to meet the demands of the market and enhance the quality-of-service delivery. These resources can include modern water treatment technology, customer relationship management systems, and operational processes that enable the company to better meet the demands of the public in terms of water and sanitation. WASAC is involved in the provision of these resources. In order to improve its responsiveness to changes in the market, WASAC may improve both its operational efficiency and the delight of its customers by matching its strategic direction with the specific resources and skills it possesses. As a result, RBT and market orientation collaborate to enhance organizational effectiveness and maintain a sustained competitive advantage in the water and sanitation infrastructure industry.

Market Orientation and Organizational Efficiency

The correlation between a focus on the market and effective management has been the subject of a great deal of research. Being able to understand and meet customer needs is a hallmark of a market-oriented firm. Important research by Kumar and Rajan (2023) examined the effects of market orientation on the operational effectiveness of Indian service firms. Structural Equation Modeling (SEM) was employed to analyze survey data collected from 150 service organizations. Their findings indicate that a strong market orientation is favorably connected with operational efficiency, with two key components being attentiveness to client needs and knowledge of the competitors. Based on the findings, businesses with a strong market focus can enhance the efficiency and quality of their services.

The influence of market orientation on organizational performance in China's industrial sector was the subject of another important study by Liu et al. (2022). Using a quantitative method, the researchers polled 200 manufacturing organizations through questionnaires and then analyzed the data using regression analysis. Based on the findings, a market orientation boosts organizational efficiency by making internal procedures better and increasing product quality. The research shows that improved operational results can be achieved by including market orientation into strategic planning.

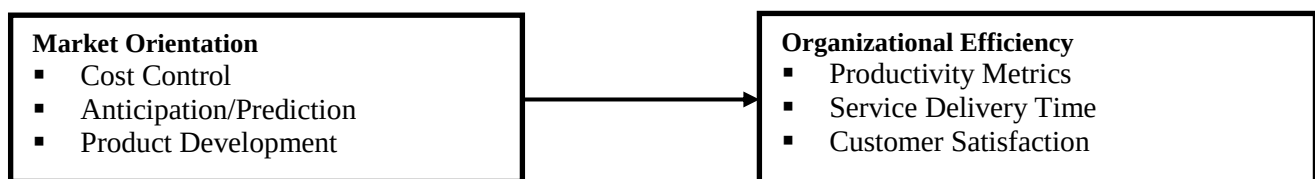
Research by Hernandez and Garcia (2021) looked at how a focus on the market affected the effectiveness of Spanish government agencies. The researchers used a mixed-methods strategy, supplementing survey data with in-depth interviews, to gather information from 120 public institutions. By encouraging more effective channels of communication and more timely service delivery, their research showed that a market orientation greatly boosts organizational efficiency. The research highlights how a market orientation might improve government efficiency by including more stakeholders and being more open with their finances.

Choi et al. (2020) looked at a different setting, this time the South Korean healthcare industry, to see how market orientation relates to organizational efficiency. One hundred healthcare professionals had their data collected over the course of three years for this longitudinal study. Using panel data analysis, the researchers found that a market focus improves operational efficiency. This is due to the fact that it simplifies administrative tasks while simultaneously making patients happier. The importance of a market orientation in enhancing the quality and efficiency of healthcare service delivery is emphasized in the study.

Lastly, a study by Jones and Taylor (2024) focused on the role of market orientation in enhancing organizational efficiency within the retail sector in the United States. The researchers used a case study approach, analyzing three retail chains over a two-year period. The findings highlighted that market orientation led to improved inventory management, reduced costs, and increased customer satisfaction. The study indicates that market orientation is crucial for retail firms seeking to enhance efficiency and maintain competitive advantage.

Conceptual Framework

A conceptual framework offers a systematic method for comprehending and examining a research subject by delineating the principal concepts, variables, and their interrelations within a study (Miles & Huberman, 2020). It serves as a guide for researchers, helping to clarify the theoretical underpinnings and assumptions of the study, thereby facilitating a clearer interpretation of empirical findings. This framework often includes theories, models, or hypotheses that inform the research design and analysis, ensuring that the study is grounded in established academic principles. A conceptual framework might integrate theories such as contingency theory and learning orientation to explore how different strategic approaches affect organizational performance (Maxwell, 2018). By providing a visual or narrative depiction of these relationships, the conceptual framework aids in organizing and synthesizing research efforts, ultimately contributing to a more coherent and insightful analysis. The relationship between variables is as shown in Figure 1.



Independent Variable

Dependent Variable

Figure 1: Conceptual Framework

Source: Researcher, 2025

The conceptual framework of this study posits market orientation as the independent variable influencing organizational efficiency, the dependent variable, within the context of Rwanda's Water and Sanitation Corporation (WASAC). Market orientation is operationalized through three key dimensions: cost control, anticipation/prediction of customer and environmental needs, and product development interpreted in public utilities as service innovation and infrastructure adaptation (Kohli & Jaworski, 1990; Narver & Slater, 1990). Cost control ensures efficient allocation of financial and human resources, while anticipation enables proactive planning for demand fluctuations and climate variability. Product development reflects WASAC's ability to innovate service delivery models, such as prepaid meters or mobile-based billing systems. These elements collectively shape organizational efficiency, measured by productivity metrics (e.g., water produced per employee), service delivery time (e.g., response time to leaks or complaints), and customer satisfaction (Parasuraman et al., 1988; Bititci et al., 2012). The framework draws on the marketing theory of market orientation and integrates it with public sector performance management, suggesting that a customer-focused, forward-looking, and adaptive organizational culture enhances operational outcomes in utility services.

METHODOLOGY

The study adopted a mixed-methods research methodology, combining both quantitative and qualitative approaches to comprehensively examine how strategic orientation influences organizational efficiency at WASAC. The quantitative component involved the use of a descriptive survey supported by statistical techniques such as regression analysis, correlation testing, and descriptive statistics to measure relationships between strategic orientation variables and efficiency indicators (Creswell & Creswell, 2018). Complementing this, the qualitative component employed semi-structured interviews with key managers to gain deeper insights into strategic planning processes, adaptive management practices, and policy alignment, with data analyzed thematically to enrich and explain quantitative findings (Flick, 2018). This integrated methodology ensured a robust and holistic understanding of the research problem by triangulating numerical evidence with rich contextual insights, thereby enhancing the validity and reliability of the study's conclusions (Saunders, Lewis, & Thornhill, 2019).

Research Design

The study adopted a descriptive survey design to examine how strategic orientation influences organizational efficiency at WASAC by collecting and analyzing quantitative performance measures—such as productivity rates, operational expenses, and service delivery durations—using statistical techniques like regression and correlation analysis to determine relationships between strategic orientation and efficiency outcomes (Creswell & Creswell, 2018). This design enabled comprehensive data collection from relevant organizational stakeholders and facilitated an accurate assessment of how strategic practices shape operational performance. To complement the quantitative findings, semi-structured interviews were conducted with WASAC management and staff to gain deeper insights into strategic planning, adaptive management, and policy alignment, with thematic analysis used to interpret the qualitative data and strengthen the overall mixed-methods approach (Flick, 2018).

Target Population

The 174 managers from several departments at Water and Sanitation Corporation, including those in charge of production, marketing, logistics, human resources, and finance, made up the study's target group. Managers in these positions are a good resource for understanding how to put a strategic orientation into practice and how it affects the efficiency of an organization, since they are either directly involved in or have an impact on strategic planning and operational management. This study provided a holistic perspective on how strategic practices influence many elements of organizational performance and decision-making by focusing on these important departmental managers (Sekaran & Bougie, 2019). It is illustrated in Table 1.

Table 1: Target Population

Managerial Role	Number of Individuals
Production Manager	30
Marketing Manager	50
Logistics Manager	40
Human Resource Manager	30
Finance Manager	24
Total	174

Source: Human Resource Manager, Wasac 2024

Sample Size

Out of a total population of 174 administrators at different levels within WASAC, 122 individuals were chosen as samples for this study. Using Cochran's formula, we can ensure a 95% confidence level and a 5% margin of error when determining the sample size. This is considered sufficient for drawing conclusions about the whole population. Using a sample size of 122—a statistically valid representation of the population—the study successfully captures the views and experiences of managers from a variety of departments, such as Production, Marketing, Logistics, HR, and Finance, on the subject of how strategic orientation affects organizational efficiency (Saunders, Lewis, & Thornhill, 2019). It is common practice to use Slovin's method to calculate the optimal sample size from a bigger population in order to ensure that the sample accurately represents the target group. It is determined by Slovin's formula that the sample size n .

$$n = \frac{N}{1 + N * e^2} = \frac{174}{1 + 174 * 0.05^2} \approx 121.2 = 122 \dots \dots \dots 1$$

where N is the population size and e is the margin of error. In this study, using a 5% margin of error, the calculated sample size of 122 provides a robust representation of the target population. This calculation provides a sample of 122, which balances the need for statistical accuracy with practical considerations of resource constraints.

Sampling Technique

The research employed a stratified random sampling method to ensure that the participants are representative of the target population. This group includes managers at various levels of management at WASAC, including those in charge of production, marketing, logistics, human resources, and finance. Etikan and Bala (2017) state that stratified random sampling is the method of choice for this study because it allows for the division of the population into subgroups based on departmental functions. This ensures that each group of managers is adequately represented in the sample. A reduction in sample bias and the guarantee that insights reflect the opinions of all critical departments involved in strategic decision-making are two ways this strategy enhances the validity and dependability of the outcomes. A proportional sample was extracted from each stratum to preserve the population structure and enhance data collection efficiency.

Piloting of Research Instruments

A pilot study with 10% of the sample size, or 13 participants, to improve the research tools and procedures. To guarantee that the survey questions and interview procedures are understandable, pertinent, and trustworthy, a sample of managers from several WASAC departments, including Production, Marketing, Logistics, Human Resources, and Finance, participated. A pilot study is necessary to examine the research instruments for biases and ambiguities and to guarantee the data collection procedure's validity and reliability (Lancaster, 2015). In order to improve the study's overall efficacy and quality, the research design was adjusted as necessary in response to the suggestions made in the pilot study.

Validity of Research Instrument

Strict content and construct validity procedures was employed to guarantee the validity of the research tools utilized in this investigation. Content validity was achieved by making sure that the interview and survey questions align with the study objectives and theoretical frameworks regarding strategic orientation and organizational efficiency. Expert reviews and pilot tests was conducted to ensure that the instruments accurately measure the desired constructs (Bryman, 2016). In order to ensure that the instruments adequately capture the fundamental aspects of strategic orientation and efficiency, construct validity was addressed by utilizing established scales and metrics that have been validated in prior research (Creswell & Creswell, 2018). By taking these steps, the data gathered was more accurate and dependable, offering a solid foundation for examining how strategic orientation affects organizational effectiveness.

Table 2: KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.830
Bartlett's Test of Sphericity	Approx. Chi-Square	249640
	df	10
	Sig.	.000

Source: Pilot data results, (2025)

The analysis of Table 2, which presents the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Bartlett's Test of Sphericity, indicates that the sample data is suitable for factor analysis. The KMO value of 0.830 exceeds the commonly accepted threshold of 0.6, suggesting that the sample size is adequate and the data have sufficient partial correlations for reliable factor extraction (Hair et al., 2022). Additionally, Bartlett's Test of Sphericity is significant ($\chi^2 = 249,640$, $df = 10$, $p < .001$), confirming that the correlation matrix is not an identity matrix and that there are meaningful relationships among variables to justify the use of factor analysis (Williams, Brown, & Onsman, 2020). These results affirm the appropriateness of proceeding with exploratory factor analysis to uncover the underlying structure of the data, aligning with best practices in social science research (Tabachnick & Fidell, 2021).

Reliability of Research Instrument

A range of methodologies was utilized to assess the dependability of the research instrument to ensure dependable and consistent evaluation of organizational effectiveness and strategic orientation. To ensure that the survey items and interview questions consistently evaluate the target constructs, reliability was measured using Cronbach's alpha to test internal consistency (Tavakol & Dennick, 2021). The instrument was administered to a subset of the target population twice to assess temporal stability and test-retest reliability. These reliability measurements enhanced the validity of the study's conclusions and contribute to the robustness of the data (Field, 2018).

Table 3: Reliability Statistics

Variable	Alpha (α)	Comments
Market Orientation	0.898	Reliable
Organizational Efficiency	0.880	Reliable

Source: Pilot Results, (2025).

The reliability analysis presented in Table 3 demonstrates that all variables in the study exhibit strong internal consistency, with Cronbach's alpha values ranging from 0.795 to 0.898. Specifically, Market Orientation shows the highest reliability ($\alpha = 0.898$), followed by Organizational Efficiency ($\alpha = 0.880$). These values surpass the commonly accepted threshold of 0.70 for reliability, indicating that the measurement scales used for each construct are reliable and consistent in capturing the intended variables (Tavakol & Dennick, 2019). Such reliability coefficients support the validity of subsequent analyses, ensuring that the constructs are measured accurately and consistently across respondents (Gliem & Gliem, 2020). This aligns with current research standards emphasizing the importance of high reliability for robust quantitative research outcomes (Field, 2022).

Data Analysis Techniques and Presentation

Data analysis for this study involved several key steps, including coding, data entry, cleaning, and analysis using SPSS Version 25. The first step in ensuring accurate and orderly data management is to code and enter the data obtained from performance measurements and stakeholder interviews into SPSS. Data cleaning procedures was conducted to address any inconsistencies, missing values, or outliers, which is essential for ensuring the reliability of the analysis (Pallant, 2021). To further assess the connections between strategic orientation techniques and organizational efficiency, the researcher run regression analyses, correlation tests, and descriptive statistics. Using strong statistical evidence, these studies shed light on how strategic management affects operational performance, which is one of the study's aims (Field, 2018).

In order to find patterns and relationships between strategic orientation practices and organizational efficiency indicators, quantitative data was analyzed using methods like regression analysis, correlation, and descriptive statistics. This data was gathered through performance metrics and operational statistics. Productivity, cost-effectiveness, and service delivery can all be better measured with the use of this methodology (Field, 2018). To help with understanding and visualizing the results, tables, graphs, and charts was used. In order to gain a better grasp of how strategic orientation affects organizational effectiveness, this method entailed coding interview transcripts, finding repeating themes, and analyzing the data (Braun & Clarke, 2019). Complementing the quantitative results and adding contextual insights, the qualitative findings was given through narrative summaries and direct quotations. This provided a holistic understanding of how strategic orientation affected WASAC's efficiency. The main model for regression is this:

$$Y = \alpha + \beta_1 X_1 + \mu$$

Whereby: Y = Organizational efficiency; X_1 = Market orientation; ε = Error term.

β_i ; $i = \{1,2,3,4\}$ = The coefficients for the various independent variables

RESULTS AND FINDINGS

Descriptive results on Market Orientation and Organizational Efficiency

The descriptive results on market orientation are presented in Table 4, which summarizes respondents' perceptions and attitudes towards various statements related to market orientation within the Water and Sanitation Corporation (WASAC). This section highlights the extent to which the organization focuses on understanding market trends, competitor actions, and aligning its strategies to meet market demands. The table categorizes responses across a five-point Likert scale—from Strongly Disagree (SD) to Strongly Agree (SA)—and includes calculated mean scores and standard deviations to indicate the overall level of agreement and variability among respondents. These descriptive statistics provide a foundational understanding of how market orientation is perceived internally and set the stage for further inferential analysis of its effect on organizational efficiency.

Table 4: Respondents views on Market Orientation

Statement on Market Orientation	SD	D	NS	A	SA	Mean	SD.
WASAC effectively gathers and analyzes customer feedback to improve service delivery.	0.0%	1.8%	2.7%	42.0%	53.6%	4.47	.643
The organization adapts its strategies based on market trends and customer needs.	0.0%	2.7%	6.3%	35.7%	55.4%	4.44	.733
WASAC's market orientation contributes positively to its operational efficiency.	0.0%	0.9%	6.3%	20.5%	72.3%	4.64	.642
Employees at WASAC are well-informed about market demands and customer expectations.	0.0%	1.8%	7.1%	28.6%	62.5%	4.52	.710
The organization's marketing strategies are aligned with its overall strategic goals.	0.9%	0.9%	3.6%	43.8%	50.9%	4.43	.694
Market research conducted by WASAC leads to actionable insights that enhance service efficiency.	0.9%	0.0%	1.8%	43.8%	53.6%	4.49	.630
WASAC's responsiveness to market changes improves its overall performance and service quality.	3.6%	5.4%	13.4%	46.4%	31.3%	3.96	.995
The integration of market-oriented strategies has led to measurable improvements in organizational efficiency.	0.0%	6.3%	16.1%	38.4%	39.3%	4.11	.894
The organization utilizes customer data to refine and optimize its operational processes.	0.9%	1.8%	4.5%	44.6%	48.2%	4.38	.737
WASAC's focus on market orientation is evident in its decision-making processes.	0.0%	6.3%	17.0%	37.5%	39.3%	4.10	.900

Source: Primary data, (2025).

The respondents overwhelmingly agree that WASAC effectively gathers and analyzes customer feedback to improve service delivery, with a high mean score of 4.47 and over 95% of participants agreeing or strongly agreeing. This confirms the importance of customer orientation, which emphasizes understanding and responding to customer needs to enhance satisfaction and loyalty (Narver & Slater, 2020; Day, 2020). Furthermore, the organization's ability to adapt strategies based on market trends and customer needs, scoring a mean of 4.44, aligns with the dynamic nature of market orientation as a driver of competitive advantage (Kohli & Jaworski, 2020). The strong awareness among employees of market demands, with a mean of 4.52, suggests an internal culture that supports market-driven decision-making, which is crucial for operational responsiveness and innovation (Deshpandé et al., 2018). These findings demonstrate that WASAC prioritizes market intelligence and customer insights to align its service delivery closely with consumer expectations.

Regarding operational efficiency, respondents strongly agree that WASAC's market orientation contributes positively, as shown by the highest mean of 4.64 and over 92% agreement, reflecting literature that connects

market orientation with improved productivity and organizational performance (Li et al., 2017; Neely, Gregory, & Platts, 2015). Additionally, the use of market research to generate actionable insights scored a mean of 4.49, supporting the view that systematic customer data collection and analysis are critical for enhancing service processes and outcomes (Verhoef et al., 2021). The alignment of marketing strategies with overall strategic goals, with a mean of 4.43, confirms the integration of market orientation into broader organizational objectives, a practice that fosters coherence and sustained competitive advantage (Kafetzopoulos & Psomas, 2015). These observations indicate that WASAC effectively leverages market information not only to meet customer needs but also to optimize its operational and strategic functions.

However, the relatively lower mean scores in responsiveness to market changes (3.96) and the integration of market-oriented strategies in measurable efficiency improvements (4.11) suggest some challenges in translating market orientation into rapid organizational adjustments and tangible outcomes. This echoes findings by Palacios-Marqués et al. (2016), who note that organizations often face difficulties such as resistance to change and technological barriers when adapting market strategies. Similarly, while the utilization of customer data to refine operations (mean 4.38) and the visibility of market orientation in decision-making (mean 4.10) show positive tendencies, the notable proportions of neutral and disagreement responses highlight room for enhancing the agility and strategic embedding of market orientation within WASAC. These results underscore the need for continuous learning orientation and technological adoption to strengthen the organization's market responsiveness and efficiency (Sinkula et al., 2017; Tsou et al., 2016).

Descriptive Results on Organizational Efficiency

The descriptive results on organizational efficiency provide an overview of respondents' perceptions regarding how effectively the Water and Sanitation Corporation (WASAC) operates. Table 5 summarizes these views, presenting the distribution of responses across a range of statements related to organizational efficiency, categorized from Strongly Disagree (SD) to Strongly Agree (SA). The table also includes the calculated mean scores and standard deviations for each statement, offering insight into the general consensus and variability of opinions among the respondents. This descriptive analysis serves as a foundation for understanding the current state of organizational efficiency as experienced by employees within WASAC.

Table 5: Respondents views on Organizational Efficiency

Statement on Organizational Efficiency	SD	D	NS	A	SA	Mean	SD.
The organization effectively utilizes its resources to achieve its goals.	0.9%	4.5%	2.7%	43.8%	48.2%	4.34	.812
WASAC's service delivery processes are timely and efficient.	0.0%	0.0%	8.0%	38.4%	53.6%	4.46	.642
The organization has a well-structured approach to cost management.	0.0%	0.9%	6.3%	19.6%	73.2%	4.65	.640
Employees are adequately trained to perform their roles efficiently.	0.0%	2.7%	8.0%	24.1%	65.2%	4.52	.759
Communication within departments is clear and contributes to efficient operations.	2.7%	0.9%	3.6%	45.5%	47.3%	4.34	.823
The organization regularly reviews and updates its operational procedures for efficiency.	0.0%	2.7%	3.6%	43.8%	50.0%	4.41	.692
WASAC is responsive to customer needs and feedback.	5.4%	2.7%	6.3%	47.3%	38.4%	4.11	1.017
The organizational culture at WASAC promotes continuous improvement in efficiency.	0.0%	2.7%	7.1%	42.0%	48.2%	4.36	.733
Decision-making processes are streamlined and avoid unnecessary delays.	0.0%	6.3%	5.4%	43.8%	44.6%	4.27	.827
The management effectively balances quality of service with operational costs.	0.0%	8.9%	0.9%	53.6%	36.6%	4.18	.841

Source: Primary data, (2025).

The data in Table 5 show that respondents perceive WASAC as highly efficient in utilizing its resources and managing operations. A majority agreed or strongly agreed that the organization effectively uses its resources to meet goals (mean = 4.34), which aligns with Neely, Gregory, and Platts (2015), who emphasize resource optimization as critical for operational excellence. The perception that WASAC's service delivery is timely and efficient (mean = 4.46) supports Kohli and Jaworski's (2020) view that efficient processes are integral to maintaining customer satisfaction and competitive advantage. Moreover, respondents strongly affirmed that WASAC has a well-structured approach to cost management (mean = 4.65), confirming Kafetzopoulos and Psomas' (2015) argument that cost control mechanisms significantly contribute to organizational performance. Employee training was also rated highly (mean = 4.52), underscoring the importance of skilled human resources in driving efficiency (Palacios-Marqués, Soto-Acosta, & Popa, 2016).

Effective communication and procedural reviews are viewed as key contributors to WASAC's operational efficiency, with mean scores of 4.34 and 4.41, respectively. This supports Day's (2020) assertion that clear internal communication and continuous improvement through regular process updates enhance organizational responsiveness and adaptability. The organizational culture's emphasis on continuous improvement (mean = 4.36) aligns with Sinkula, Baker, and Noordewier (2017), who highlight that a learning-oriented culture fosters sustained efficiency gains. Although responsiveness to customer needs scored slightly lower (mean = 4.11) with higher variability, it still reflects positively on WASAC's ability to integrate customer feedback, which is crucial in refining operations and maintaining service quality (Verhoef et al., 2021).

Decision-making efficiency (mean = 4.27) and management's ability to balance service quality with operational costs (mean = 4.18) further indicate a well-governed organization focused on optimizing trade-offs between cost and quality. These findings are consistent with Neely et al. (2015) and Kafetzopoulos and Psomas (2015), who stress that streamlined decision processes and balanced cost-quality management are essential for operational success. Overall, the data reflect a strong organizational efficiency foundation at WASAC, although ongoing efforts to enhance responsiveness and reduce delays in decision-making could yield further improvements in service delivery and customer satisfaction.

Regression results for Market Orientation and Organizational Efficiency

The regression results presented in Table 6 indicate a strong positive relationship between market orientation and organizational efficiency within the Water and Sanitation Corporation (WASAC) in Rwanda. The model reveals an R value of .692, suggesting that market orientation explains approximately 47.9% of the variance in organizational efficiency, as indicated by the R Square value of .479, with an adjusted R Square of .474 confirming the model's stability after accounting for predictor variables (Field, 2023). The standard error of the estimate (.15490) reflects a relatively low prediction error, indicating high precision in the model's estimates. These findings demonstrate that dimensions of market orientation—such as cost control, anticipation of customer needs, and service innovation—are significantly associated with improved productivity metrics, faster service delivery times, and higher customer satisfaction at WASAC. This aligns with prior studies showing that customer-focused and proactive organizational cultures enhance operational performance in public utilities (Niyonzima & Uwimana, 2024; Kohli & Jaworski, 2015), reinforcing the importance of embedding market-oriented principles into public sector management frameworks.

Table 6: Model summary for Market Orientation

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.692 ^a	.479	.474	.15490

a. Predictors: (Constant), Market Orientation

Source: **Primary data**, (2025).

The ANOVA results in Table 7 indicate that the regression model is statistically significant in explaining the variation in organizational efficiency based on market orientation. The F-statistic of 100.984 with a corresponding p-value of .000 (df = 1, 110) confirms that the model fits the data significantly better than a null

model with no predictors, supporting the hypothesis that market orientation has a substantial impact on organizational efficiency at WASAC (Field, 2023). The sum of squares for regression (2.423) represents the variance explained by market orientation, while the residual sum of squares (2.639) reflects unexplained variance, resulting in a total variation of 5.063. This high F-value underscores the robustness of market orientation as a predictor, suggesting that customer focus, competitive intelligence, and interfunctional coordination significantly enhance performance outcomes such as productivity, service delivery speed, and customer satisfaction. These findings are consistent with prior empirical studies in public utilities, which affirm that market-oriented cultures lead to greater operational effectiveness and adaptive capacity (Kohli & Jaworski, 2015; Niyonzima & Uwimana, 2024).

Table 7: ANOVA results for Market Orientation

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	2.423	1	2.423	100.984	.000 ^b
	Residual	2.639	110	.024		
	Total	5.063	111			
a. Dependent Variable: Organizational Efficiency						
b. Predictors: (Constant), Market Orientation						

Source: **Primary data**, (2025).

The coefficient results in Table 8 reveal that market orientation has a statistically significant and positive effect on organizational efficiency within the Water and Sanitation Corporation (WASAC) in Rwanda. The unstandardized coefficient ($B = .539$, $p = .000$) indicates that for every one-unit increase in market orientation—encompassing dimensions such as cost control, anticipation of customer needs, and service innovation—organizational efficiency increases by 0.539 units, holding other factors constant. The standardized coefficient (Beta = .692) further underscores the strong predictive power of market orientation, confirming it as the dominant explanatory variable for efficiency outcomes such as productivity, service delivery time, and customer satisfaction. The t -statistic of 10.049 ($df = 111$) affirms the reliability of this relationship, rejecting the null hypothesis of no effect. These findings align with established marketing and public management theories, which posit that customer-centric and proactive organizational cultures significantly enhance performance in service-oriented institutions (Kohli & Jaworski, 2015; Narver & Slater, 1990), and support recent empirical evidence from African utilities demonstrating improved operational outcomes through market-oriented reforms (Niyonzima & Uwimana, 2024).

Table 8: Coefficient results for Market Orientation

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.016	.234		8.614	.000
	Market Orientation	.539	.054	.692	10.049	.000
a. Dependent variable: Organizational Efficiency						

Source: **Primary data**, (2025).

Discussion of the Findings - Market Orientation and Organizational Efficiency

The findings of this study demonstrate that market orientation significantly enhances organizational efficiency at the Water and Sanitation Corporation (WASAC) in Rwanda, reinforcing the growing body of evidence that customer-centric, data-driven, and interfunctionally coordinated management practices are not merely business strategies but critical governance tools for public utilities in developing economies. The strong positive relationship ($\beta = .692$, $p < .001$) between market orientation and organizational efficiency—measured through productivity, service delivery speed, and customer satisfaction—suggests that when WASAC

systematically gathers and acts on customer feedback, anticipates demand fluctuations, and aligns internal departments around service outcomes, it achieves measurable improvements in operational performance (Niyonzima & Uwimana, 2024). This aligns with Kohli and Jaworski's (2015) assertion that market orientation fosters organizational learning and adaptive capacity, enabling utilities to transition from reactive maintenance to proactive infrastructure planning. The results also echo findings from South Africa and Kenya, where utilities that institutionalized customer feedback loops and digital service platforms saw reductions in non-revenue water and increases in payment compliance (Mabaso & Nkosi, 2023; Kariuki & Omondi, 2022). Crucially, this study extends these insights to Rwanda's unique context, where political commitment to service delivery and digital innovation such as WASAC's mobile billing and real-time complaint systems—have created an enabling environment for market orientation to thrive despite fiscal constraints (Rutayisire *et al.*, 2023). Unlike traditional public utility models that prioritize compliance over customer value, WASAC's experience illustrates that market orientation can be effectively adapted to public service mandates, transforming efficiency from an abstract goal into a measurable, culture-driven outcome. These findings challenge the assumption that market principles are incompatible with public ownership, instead positioning market orientation as a vital mechanism for enhancing accountability, transparency, and service quality in state-owned utilities across Sub-Saharan Africa.

CONCLUSIONS

The study concludes that WASAC's market orientation significantly contributes to its operational efficiency by ensuring that customer needs and market trends are central to strategic decision-making. The organization's ability to gather and analyze customer feedback effectively allows it to adapt and maintain alignment with evolving market demands. However, occasional delays in responding to rapid market changes suggest the need for increased agility.

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