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Water Supply Reliability and Digital Billing Effectiveness in Relation to Customer Satisfaction Among Concessionaires of Tanay Water District

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Abstract

This study examined the relationships of water supply reliability and digital billing effectiveness with customer satisfaction among concessionaires of Tanay Water District. The study employed a quantitative, descriptive-correlational research design and collected data from 377 concessionaires using a structured questionnaire.

The findings showed that assurance received the highest rating among the dimensions of water supply reliability, while usability received the highest rating among the dimensions of digital billing effectiveness. Customer satisfaction with complaint handling also received a favorable rating. Among the dimensions examined, digital billing usability demonstrated the strongest relationship with overall customer satisfaction. These findings emphasize the importance of maintaining reliable water services and providing convenient, accessible, and user-friendly digital billing systems. Improving these areas may help Tanay Water District enhance service delivery and strengthen customer satisfaction among its concessionaires.The study concludes that while digital emergency features and safety training programs are essential for rider preparedness, occupational security, and institutional support, they do not function as standalone deterrents against external crimes on the road. The reduction of external street crimes is predominantly governed by broader environmental factors, such as police visibility, street lighting, and community safety interventions. Consequently, the study recommends strengthening multi-agency collaboration between transport network companies, local government units, and law enforcement agencies to enhance rapid emergency response and street-level crime prevention strategies.

Keywords: *Water supply reliability, digital billing effectiveness, customer satisfaction, concessionaires, Tanay Water District.*

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INTRODUCTION

In a fast-growing municipality such as Tanay, Rizal, a reliable supply of safe potable water is essential to meet the community's daily needs. Tanay Water District is the primary water service provider in the municipality and serves residential, commercial, and government establishments. A reliable water supply is important because interruptions and inconsistent service can affect the daily activities of households, businesses, and other establishments. In addition to water availability, the way concessionaires receive their water bills is also an important part of service delivery. Digital billing offers concessionaires a convenient way to access information about their water consumption and payments. These services may influence how concessionaires see and evaluate the quality of service they receive.

Access to sufficient and safe drinking water is a global concern affecting communities and water service providers. According to the World Health Organization (WHO, 2023), approximately 2.2 billion people worldwide lacked access to safely managed drinking water in 2022. At the same time, water utilities in different countries are adopting digital technologies to improve their operations and the services they provide to customers. A 2023 survey of 64 water utilities across 28 countries found that digital transformation is increasingly being adopted in the water utility sector because of its potential to improve operations and provide economic benefits (Daniel et al., 2023). These developments indicate that water service provision is no longer focused solely on supplying sufficient water; it also involves improving how utilities communicate with customers and deliver services. Therefore, examining water supply reliability and the effectiveness of digital services, including billing, is important in understanding how customers evaluate the services they receive. Digital integration may also reduce administrative workload and minimize human error in financial reporting.

In the Philippines, access to potable water remains an important concern despite improvements in the country's water facilities. Based on the 2024 Annual Poverty Indicators Survey (APIS) of the Philippine Statistics Authority (PSA), 97.5% of Filipino families had access to at least basic drinking water services, while 53.1% had access to safely managed drinking water services. However, 6.5% of families still experienced insufficient drinking water because water was not available in their area (Philippine Statistics Authority, 2025). In addition, a study conducted in the Calamba Water District found a significant relationship between service delivery and customer satisfaction among concessionaires, highlighting the importance of how water utilities provide their services to customers (Alzona, 2021). These findings show that water service providers in the Philippines need to consider not only the availability of water supply but also the quality of customer services, including billing and payment-related processes.

Tanay Water District (TanWD) is the primary provider of water services in Tanay, Rizal residential, commercial, and government establishments with 19,940 water service connections. In 2026, TanWD introduced a new system called, Read-and-Bill Invoice System, where every water meter reader can print and bill the reading of every water meter on the same time. This development shows the district’s continuous efforts to improve its water supply and billing services.

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This study aims to determine how water supply reliability and the effectiveness of digital billing relate to concessionaires' satisfaction with the services provided by the Tanay Water District. The study will provide a better understanding of concessionaires' experiences and may help Tanay Water District identify areas where it can improve its water and billing services.

STATEMENT OF THE PROBLEM

1. What is the level of water supply reliability among the concessionaires in terms of:
    1.1 Reliability (consistency of water pressure)
    1.2 Assurance (water quality)
    1.3 Tangibles (physical condition of water meters and facilities)
    1.4 Empathy (handling of concessionaires' welfare)
    1.5 Responsiveness (speed of addressing complaints and water interruptions)
    1.6 Security (data privacy and safety in handling customer account information)
2. What is the level of digital billing effectiveness among the concessionaires in terms of:
    2.1 Accuracy (correctness of billed amounts and consumption history)
    2.2 Accessibility (ease of retrieving, viewing, and paying bills online)
    2.3 Timeliness (promptness of receiving electronic billing statements)
    2.4 Usability (user-friendliness of the digital billing interface and notification channels)
3. What is the level of customer satisfaction among the concessionaires of the Tanay Water District across overall service delivery, billing transparency, and customer support channels?
    3.1 Overall satisfaction
    3.2 Satisfaction with service quality
    3.3 Satisfaction with complaint handling
4. Is there a significant relationship between water supply reliability and customer satisfaction?
5. Is there a significant relationship between digital billing effectiveness and customer satisfaction?
6. Based on the findings of the study, what proposed action plan or program may be developed to improve concessionaire satisfaction and operational efficiency?

METHODOLOGY

This study used a descriptive-correlational research design to examine the relationships among water supply reliability, digital billing effectiveness, and customer satisfaction among Tanay Water District concessionaires. The descriptive component determined the levels of water supply reliability, digital billing effectiveness, and customer satisfaction based on the concessionaires' responses. Data were gathered through a survey questionnaire using a four-point Likert scale. The correlational component examined the relationships between water supply reliability and customer satisfaction, and between digital billing effectiveness and customer satisfaction. The collected data were organized, tabulated, and analyzed using appropriate statistical techniques.

The study was conducted at Tanay Water District (TanWD), located in the Municipality of Tanay, Rizal, Philippines. It focused on concessionaires within the District's service area, who served as respondents in assessing the relationships among water supply reliability, digital billing

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effectiveness, and customer satisfaction. The location was appropriate for the study because the District's concessionaires directly experience its water supply services and billing processes.

The respondents consisted of active concessionaires of Tanay Water District, which had a total of 19,940 active concessionaires as of September 2026. The sample size was determined using the Raosoft Sample Size Calculator, with a 95% confidence level, a 5% margin of error, and a 50% response distribution. Based on these parameters, the required minimum sample size was 377 respondents.

To qualify for participation, a respondent had to be an active concessionaire of Tanay Water District during the data collection period, have direct experience with the District's water supply services and billing processes, and voluntarily agree to participate in the study. Participation in the study was entirely voluntary. Their decision to participate or decline had no effect on their access to water services provided by Tanay Water District. Research records were retained only for the period necessary to fulfill the research objectives and comply with applicable institutional requirements.

The study used simple random sampling, in which each eligible concessionaire had an equal chance of being selected from the official list of active concessionaires. A computerized random number generator was used to select the required sample. If selected individuals declined to participate or could not be reached, additional respondents were selected using the same procedure to achieve the required minimum number of completed and usable questionnaires.

The researchers observed ethical principles throughout the study to protect the rights, privacy, safety, and welfare of the respondents. The study complied with Republic Act No. 10173, or the Data Privacy Act of 2012, which provides safeguards for personal information. Before data collection, respondents were informed of the study's purpose, the nature of their participation, the types of information to be collected, and how their responses would be used.

The researchers upheld honesty and integrity during data collection, analysis, and reporting. No responses were fabricated, falsified, or altered to support the researchers' expectations. All findings were reported objectively and accurately to maintain the credibility and reliability of the study.

A four-point Likert scale was used to measure respondents' levels of agreement with the statements in the survey questionnaire. The responses were analyzed using the mean to determine the level of assessment for each variable.

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Table A. Four-Point Likert Scale for the level of agreement of Water Supply Reliability, Digital Billing Effectiveness and Customer Satisfaction

Numerical Scale	Range	Categorical Response	Interpretation
4	3.26 - 4.00	Strongly Agree	Very High
3	2.51 - 3.25	Agree	High
2	1.76 - 2.50	Disagree	Low
1	1.00 - 1.75	Strongly Disagree	Very Low

RESULTS AND DISCUSSION

The following tables show the results of the study on water supply reliability and digital billing effectiveness in relation to customer satisfaction among concessionaires of Tanay Water District. The findings provide insights into the respondents' assessments of the Tanay Water Districts' services and identify areas for improvement that may help Tanay Water District to meet the needs and expectations of its concessionaires.

1. **The level of water supply reliability among the concessionaires in terms of Reliability (consistency of water pressure); Assurance (water quality); Tangibles (physical condition of water meters and facilities); Empathy (handling of concessionaires' welfare); Responsiveness (speed of addressing complaints and water interruptions); and Security (data privacy and safety in handling customer account information).**

Table 1.1

The level of water supply reliability among the concessionaires in terms of Reliability (consistency of water pressure).

INDICATORS	WEIGHTED MEAN	VERBAL INTERPRETATION	RANK
1. My household experiences an uninterrupted water supply throughout the entire 24-hour day.	2.97	High	4
2. The water pressure remains strong and adequate even during peak usage hours (e.g., mornings and evenings).	2.93	High	5.5
3. My area rarely experiences unannounced water service shutdowns.	2.93	High	5.5
4. When water service is interrupted, Tanay Water District restores the water supply within a reasonable timeframe.	3.00	High	3

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5. Tanay Water District provides timely advance notice prior to scheduled maintenance or water interruptions.	3.05	High	2
6. The water coming out of the tap is consistently clean, clear, and odorless.	3.37	Very High	1
GENERAL ASSESSMENT	**3.04**	**High**	

Legend: 3.26 - 4.00 – Very High / 2.51 - 3.25 – High / 1.76 - 2.50 – Low / 1.00 - 1.75 – Very Low

The Table 1.1 presents the level of water supply reliability among the concessionaires of Tanay Water District in terms of consistency of water pressure. Among the six indicators, the statement "*the water coming out of the tap are consistently clean, clear, and odorless"* obtained the highest weighted mean of 3.37, interpreted as Very High. Meanwhile, the indicators *"The water pressure remains strong and adequate even during peak usage hours (e.g., mornings and evenings)" and "My area rarely experiences unannounced water service shutdowns."* obtained the lowest weighted mean of 2.93, interpreted as Very High.

The findings suggest that respondents generally consider the District's water supply services are reliable. However, some aspects, particularly water pressure during peak hours, uninterrupted water availability, and unexpected service interruptions, may still need improvement. The District may consider strengthening pressure monitoring, improving maintenance planning, providing timely service advisories, and monitoring the frequency and duration of interruptions.

Similar findings were reported by Haider et al. (2022), who highlighted the role of system reliability and preventive maintenance in reducing customer dissatisfaction. Preña et al. (2026) also discussed common water service concerns, such as weak water pressure, interruptions, and poor communication. These studies emphasize the need to address operational problems, while the World Health Organization (2022) stresses the importance of regular water quality monitoring to ensure safe drinking water.

Table 1.2
The level of water supply reliability among the concessionaires in terms of Assurance (water quality).

INDICATORS	WEIGHTED MEAN	VERBAL INTERPRETATION	RANK
1. The water from my tap is clear, colorless, and free of sediment or rust.	3.28	Very High	2
2. The water supplied is safe and suitable for daily domestic tasks (e.g., cooking, washing, bathing).	3.36	Very High	1
3. I trust that Tanay Water District conducts regular water sampling and quality monitoring.	3.14	High	3
4. The water supplied is consistently free from unpleasant odors or metallic/chlorine tastes.	3.07	High	4

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5. The water supply poses no health or sanitation risks to my household.	3.05	High	5
6. Tanay Water District actively communicates water quality reports and safety advisories to concessionaires.	3.01	High	6
GENERAL ASSESSMENT	**3.15**	**High**	

Legend: 3.26 - 4.00 – Very High / 2.51 - 3.25 – High / 1.76 - 2.50 – Low / 1.00 - 1.75 – Very Low

Table 1.2 illustrates the level of water supply reliability among the concessionaires of Tanay Water District in terms of assurance or the water quality. The indicator *"The water supplied is safe and suitable for daily domestic tasks, such as cooking, washing, and bathing"* has the highest weighted mean of 3.36, interpreted as Very High. The lowest-rated indicator says that the *"Tanay Water District actively communicates water quality reports and safety advisories to concessionaires"* which has a weighted mean of 3.01, interpreted as High.

This shows that respondents consider that the water supplied by the district is suitable for their everyday household needs. Although the result remains favorable, it suggests that the Tanay Water District should provide a regular update about the water quality report and safety advisories for the public.

These findings align with the World Health Organization (2022), which highlights the importance of regular water quality monitoring and informing consumers about potential risks. Cawby et al. (2023) and Carpenter and Parks (2024) also emphasized the role of clear communication in building customer trust and confidence in water utilities.

Table 1.3
The level of water supply reliability among the concessionaires in terms of Tangibles (physical condition of water meters and facilities).

INDICATORS	WEIGHTED MEAN	VERBAL INTERPRETATION	RANK
1. The glass screen on my water meter is clean, clear, and easy to read.	2.77	High	5.5
2. My water meter is safely mounted, securely sealed, and protected from leaks or damage.	2.77	High	5.5
3. The Tanay Water District office is clean, organized, and welcoming to concessionaires.	2.97	High	2
4. Water distribution pipelines and valves visible in my neighborhood are well-maintained.	2.85	High	4
5. Tanay Water District promptly attends to visibly damaged or defective water service facilities.	2.93	High	3
6. Tanay Water District personnel and field maintenance staff look clean and professional	3.00	High	1

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and have the proper tools.		
GENERAL ASSESSMENT	**2.88**	**High**

Legend: 3.26 - 4.00 – Very High / 2.51 - 3.25 – High / 1.76 - 2.50 – Low / 1.00 - 1.75 – Very Low

The date presented in Table 1.3 show the level of water supply reliability among Tanay Water District concessionaires in terms of tangibles, or the physical condition of water meters and facilities. The highest-rated indicator was the statement that *"Tanay Water District personnel and field maintenance staff look clean and professional and have the proper tools."* It obtained weighted mean of 3.00, interpreted as High. On the other hand the two lowest-rated indicators are *"The glass screen on my water meter is clean, clear, and easy to read."* And *"My water meter is safely mounted, securely sealed, and protected from leaks or damage."* Both obtained a weighted mean of 2.77, interpreted as High.

Findings shows that the respondents had a positive perception of the appearance and preparedness of the District's personnel. While it suggests too that the Tanay Water District should conduct a regular water meter inspection, clean meter covers and replace damaged water meter covers when necessary. These measures may address concessionaires' concerns about the physical condition, visibility and protection of their water meters.

These results aligned with Buchanan et al. (2023), who highlighted the importance of clear performance standards and proper maintenance in water utility management. A 2023 study of Portuguese water supply companies also emphasized the value of structured asset management, while a study of Laguna water service providers identified areas for improvement in facilities and frontline services.

Table 1.4
The level of water supply reliability among the concessionaires in terms of Empathy (handling of concessionaires' welfare).

INDICATORS	WEIGHTED MEAN	VERBAL INTERPRETATION	RANK
1. Tanay Water District prioritizes the convenience and well-being of its concessionaires when making service adjustments.	3.01	High	1
2. District office staff and field personnel interact with me politely, respectfully, and professionally.	2.91	High	6
3. Customer service staff listen patiently to my billing or water supply complaints without rushing me.	2.98	High	2
4. The district offers reasonable assistance or flexible options (e.g., payment arrangements) during periods of temporary hardship.	2.95	High	4

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5. During emergency or water quality issues, the district demonstrates genuine concern for affected concessionaires.	2.94	High	5
6. Tanay Water District provides convenient operating hours and accessible customer support channels for all concessionaires.	2.97	High	3
GENERAL ASSESSMENT	**2.96**	**High**	

Legend: 3.26 - 4.00 – Very High / 2.51 - 3.25 – High / 1.76 - 2.50 – Low / 1.00 - 1.75 – Very Low

Table 1.4 shows the level of water supply reliability among the concessionaires of Tanay Water District in terms of empathy, particularly the way the District considers and responds to the needs and concerns of its concessionaires. The results yielded a general weighted mean of 2.96, verbally interpreted as High. Among the six indicators, *"Tanay Water District prioritizes the convenience and well-being of concessionaires when making service adjustments"* obtained the highest weighted mean of 3.01, interpreted as High. Meanwhile, The lowest-rated indicator was *"District office staff and field personnel interact with me politely, respectfully, and professionally."* with a weighted mean of 2.91, interpreted as High.

The result shows that respondents generally have a positive perception of the District's concern for their welfare. However, The findings also suggest that there may be opportunities to improve staff interactions, complaint handling, and the assistance provided to concessionaires experiencing difficulties. The District may consider providing regular customer service training to improve its customer service section. This effort may help strengthen the relationship between the District and its concessionaires and contribute to better customer satisfaction.

These results are supported by Libunao and Gaddi (2025), who identified empathy as a key factor in client satisfaction, and Villanueva and Baloloy (2025), who emphasized clear and timely communication during service disruptions. DiCarlo et al. (2023) also highlighted the importance of customer complaints in improving water utility operations. Together, these studies show the value of understanding customer needs, communicating effectively, and addressing concerns promptly.

Table 1.5
The level of water supply reliability among the concessionaires in terms of Responsiveness (speed of addressing complaints and water interruptions).

INDICATORS	WEIGHTED MEAN	VERBAL INTERPRETATION	RANK
1. Tanay Water District acknowledges my reported water service issues within a reasonable timeframe.	2.95	High	1.5
2. Tanay Water District provides clear, real-time status updates during water outages or main repairs.	2.74	High	5

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3. It is easy to contact the Tanay Water District through their hotlines, Facebook page, or office customer desk.	2.89	High	3
4. Tanay Water District responds quickly to my requests or complaints regarding water services.	2.86	High	4
5. Tanay Water District provides timely information about scheduled water interruptions and service restoration.	2.91	High	2
6. Tanay Water District takes immediate action to address reported water service problems.	2.95	High	1.5
GENERAL ASSESSMENT	**2.88**	**High**	

Legend: 3.26 - 4.00 – Very High / 2.51 - 3.25 – High / 1.76 - 2.50 – Low / 1.00 - 1.75 – Very Low

Table 1.5 shows the level of water supply reliability among the concessionaires of Tanay Water District in terms of responsiveness, particularly the speed of addressing complaints and water interruptions. The indicators *"Tanay Water District acknowledges my reported water service issues within a reasonable timeframe"* and *"Tanay Water District takes immediate action to address reported water service problems."* both obtained the highest weighted mean of 2.95, interpreted as High. While the lowest indicator is *"Tanay Water District provides clear, real-time status updates during water outages or main repairs."* obtained a weighted mean of 2.74, interpreted as High.

The results suggest that respondents generally recognize the District's efforts to acknowledge their concerns and take action when service problems occur. Nevertheless, acknowledgment and action are not necessarily the same as complete resolution, so continued monitoring of response and repair times remains important. This suggests that timely communication during ongoing service interruptions have the most important area for improvement.

These findings are supported by Vilarinho et al. (2024) and Tiedmann et al. (2024), who emphasized the value of customer feedback in assessing service quality and identifying operational issues. Similarly, the Consumer Council for Water (2024) highlighted poor communication and lack of information as common causes of customer dissatisfaction. These studies show the importance of handling complaints and keeping customers informed during service disruptions.

Table 1.6
The level of water supply reliability among the concessionaires in terms of Security (data privacy and safety in handling customer account information).

INDICATORS	WEIGHTED MEAN	VERBAL INTERPRETATION	RANK
1. Tanay Water District is compliant with data priv standards.	3.02	High	1
2. Payment transactions made through online payment portals (e.g., GCash, Maya,	2.79	High	5

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landbank) are safe and secure.			
3. I am confident that Tanay Water District does not share or sell my personal information to third parties without my consent.	2.98	High	3
4. Tanay Water District clearly communicates how it collects, uses, and protects my customer data during transactions.	2.89	High	4
5. Tanay Water District ensures that my payment and transaction information is protected from unauthorized access.	3.00	High	2.5
6. Tanay Water District has adequate security measures to protect customers from fraud or unauthorized transactions.	3.00	High	2.5
GENERAL ASSESSMENT	**2.95**	**High**	

Legend: 3.26 - 4.00 – Very High / 2.51 - 3.25 – High / 1.76 - 2.50 – Low / 1.00 - 1.75 – Very Low

The findings presented Table 1.6 show that the level of water supply reliability in terms of security, particularly the protection of customer information and online transactions, obtained a general weighted mean of 2.95, verbally interpreted as High. The highest-rated indicator was the *"Tanay Water District is compliant with data privacy standards."* with a weighted mean of 3.02. However, the lowest-rated indicator was *"Payment transactions made through online payment portals (e.g., GCash, Maya, landbank) are safe and secure."* which received a weighted mean of 2.79.

Result shows that the concessionaires generally have a favorable perception of Tanay Water District's efforts to protect their personal information, but with reservation about security of digital payments. It is suggested that the District should have a better communication regarding how customer data are collected, used, and protected.

These findings highlight the importance of protecting customer information as public utilities adopt digital systems. NIST (2023) and the U.S. EPA Office of Inspector General (2024) emphasize the cybersecurity risks faced by water utilities, while Belmonte et al. (2024) identify trust as a key factor in e-wallet adoption. These findings suggest that effective security measures and clear communication are essential in building customer trust. Tanay Water District may therefore strengthen its privacy notices, explain its data protection measures, and provide guidance on safe online payment practices.

2. **The level of digital billing effectiveness among the concessionaires in terms of Accuracy (correctness of billed amounts and consumption history); Accessibility (ease of retrieving, viewing, and paying bills online); Timeliness (promptness of receiving electronic billing statements); and Usability (user-friendliness of the digital billing interface and notification channels).**

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Table 2.1
The level of digital billing effectiveness among the concessionaires in terms of Accuracy (correctness of billed amounts and consumption history).

INDICATORS	WEIGHTED MEAN	VERBAL INTERPRETATION	RANK
1. The water volume (cubic meters) on my digital bill matches my physical meter reading.	2.94	High	3.5
2. The billing coverage period and due date indicated on my digital bill are clear, correct, and realistic.	2.85	High	5
3. The same-day meter reading and billing system is highly effective and accurate.	3.01	High	1
4. I rarely encounter billing errors, duplicate charges, or miscalculations in my digital billing statements.	2.86	High	4
5. The customer information shown on my digital bill is complete and correct.	2.95	High	2
6. The charges and total amount on my digital bill are calculated correctly.	2.94	High	3.5
GENERAL ASSESSMENT	**2.92**	**High**	

Legend: 3.26 - 4.00 – Very High / 2.51 - 3.25 – High / 1.76 - 2.50 – Low / 1.00 - 1.75 – Very Low

The findings presented in Table 2.1 show that the level of digital billing effectiveness in terms of accuracy obtained a general weighted mean of 2.92, verbally interpreted as High. The highest-rated indicator was *"The same-day meter reading and billing system is highly effective and accurate."* with a weighted mean of 3.01. However, the indicator *"The billing coverage period and due date indicated on my digital bill are clear, correct, and realistic."* received the lowest weighted mean of 2.85, verbally interpreted as High.

The results reflect that the concessionaires generally perceive Tanay Water District's digital billing system as accurate in presenting water consumption, customer information, and billing charges. But concessionaire have confusion when it comes to the clarity and correctness of billing coverage period and due date on their digital bill.

These findings highlight the importance of accurate meter readings, reliable data processing, and clear billing information. Ferrante et al. (2023) emphasized the need for accurate water meter readings, while Daniel et al. (2023) discussed how digital technologies can improve water utility operations. Ofwat (2024) also highlighted the importance of clear billing information and effective customer communication. These studies suggest that Tanay Water District should regularly validate billing data and address discrepancies promptly.

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Table 2.2
The level of digital billing effectiveness among the concessionaires in terms of Accessibility (ease of retrieving, viewing, and paying bills online).

INDICATORS	WEIGHTED MEAN	VERBAL INTERPRETATION	RANK
1. I receive my electronic billing statement via email on time every billing cycle.	3.03	High	1
2. Registering my email address and opting in to electronic billing with Tanay Water District was simple.	2.84	High	5
3. Electronic bills I receive by email open easily and are easy to read on my mobile phone or computer.	2.97	High	2.5
4. Receiving my water bill electronically via email is more convenient for me than relying solely on paper notices.	2.94	High	3
5. Tanay Water District sends timely email reminders before the payment due date.	2.90	High	4
6. I can easily access previous digital billing statements when needed.	2.97	High	2.5
GENERAL ASSESSMENT	**2.94**	**High**	

Legend: 3.26 - 4.00 – Very High / 2.51 - 3.25 – High / 1.76 - 2.50 – Low / 1.00 - 1.75 – Very Low

The findings presented in Table 2.2 show that the level of digital billing effectiveness in terms of accessibility obtained a general weighted mean of 2.94, verbally interpreted as High. The highest-rated indicator was *"I receive my electronic billing statement via email on time every billing cycle"*, with a weighted mean of 3.03. However, *"Registering my email address and opting in to electronic billing with Tanay Water District was simple."* received the lowest mean of 2.84 with verbal interpretation of high.

The results reflect that concessionaires generally find Tanay Water District's electronic billing service accessible and convenient. This suggests that the district generally delivers bills on time, allowing customers to monitor their accounts and prepare for payment. Although the lowest indicators were still verbally interpreted as high, they suggest opportunities to simplify enrollment and improve payment reminders.

The results highlight the need to make digital billing services simple and accessible to customers. Thanhakit and Kaewsuwan (2024) identified system complexity and access barriers as factors affecting online water bill payments. Mencias et al. (2024) also showed how electronic billing, payment options, and notifications can improve convenience. A 2024 study on the eGov PH application further emphasized the importance of user awareness and ease of use. These findings suggest that Tanay Water District should simplify billing registration, ensure bills are easy to read on different devices, and send timely payment reminders.

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Table 2.3

The level of digital billing effectiveness among the concessionaires in terms of Timeliness (promptness of receiving electronic billing statements).

INDICATORS	WEIGHTED MEAN	VERBAL INTERPRETATION	RANK
1. My E-billing is emailed to me consistently after my scheduled reading date.	3.04	High	1
2. Electronic bill notices show clearly the exact payment deadline and penalty dates well in advance.	2.87	High	6
3. Email billing eliminates physical delivery delays or lost paper bills compared to traditional mail delivery.	2.99	High	2
4. Digital billing reduces delays in receiving my water bill.	2.94	High	4
5. I receive my electronic water bill early enough to make a payment without feeling rushed before the due date.	2.98	High	3
6. I am immediately notified via email whenever there is any change or adjustment to my billing period or delivery schedule.	2.91	High	5
GENERAL ASSESSMENT	**2.95**	**High**	

Legend: 3.26 - 4.00 – Very High / 2.51 - 3.25 – High / 1.76 - 2.50 – Low / 1.00 - 1.75 – Very Low

The findings presented in Table 2.3 show that the level of digital billing effectiveness in terms of timeliness obtained a general weighted mean of 2.95, verbally interpreted as High. . The highest-rated indicator was *"My E-billing is emailed to me consistently after my scheduled reading date."* with a weighted mean of 3.04. However, the indicator *"Electronic bill notices show clearly the exact payment deadline and penalty dates well in advance."* received the lowest weighted mean of 2.87.

The response indicate that concessionaires generally perceive Tanay Water District's electronic billing service as timely in delivering billing statements and providing information needed for payment. Although indicators were rated High, the findings suggest that the district could further improve the clarity and promptness of customer notifications, particularly when payment deadlines or billing schedules change.

Recent studies highlight the value of timely digital updates in improving customer experience. Rousso et al. (2024) emphasized how digital technologies can support more proactive water utility services, while J.D. Power (2024) noted the growing use of digital channels for billing and customer concerns. Hans (2024) also highlighted how timely notifications can improve customer satisfaction and trust. These findings suggest that Tanay Water District should continue sending

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timely emails and provide clear reminders about payment deadlines, penalties, and schedule changes to help customers stay informed and avoid inconvenience.

Table 2.4

The level of digital billing effectiveness among the concessionaires in terms of Usability (user-friendliness of the digital billing interface and notification channels).

INDICATORS	WEIGHTED MEAN	VERBAL INTERPRETATION	RANK
1. The layout of my emailed bill is well-organized, making essential details (due date, total amount, consumption) immediately visible.	3.03	High	2
2. The font size, tables, and numerical figures on both the electronic and same-day printed bill are easy to read.	2.83	High	6
3. I can easily interpret my monthly water usage and total balance on my electronic bill without needing help from others.	2.99	High	4
4. The terminology, rate calculations, and line-item fees on my electronic bill are presented in plain, clear language.	2.98	High	5
5. I can easily find important information such as my account number, consumption, amount due, and payment deadline on my digital bill.	3.02	High	3
6. I can still pay my water bill even if I lose or deleted the copy of my water bill.	3.08	High	1
GENERAL ASSESSMENT	**2.99**	**High**	

Legend: 3.26 - 4.00 – Very High / 2.51 - 3.25 – High / 1.76 - 2.50 – Low / 1.00 - 1.75 – Very Low

The findings presented in Table 2.4 show that the level of digital billing effectiveness in terms of usability obtained a general weighted mean of 2.99, verbally interpreted as High. The highest-rated indicator *"I can still pay my water bill even if I lose or deleted the copy of my water bill."* with a weighted mean of 3.08 interpreted as High. However, *"The font size, tables, and numerical figures on both the electronic and same-day printed bill are easy to read."* received the lowest weighted mean of 2.83 verbally interpreted as High.

The data gathered shows that the respondents appreciate having alternative ways to settle their bills without depending solely on a saved copy of the statement. These results suggest that essential billing details are generally accessible to customers. The clarity of same-day bill needs improvement as per concessionaires' response

These findings align with Nour (2022) and Singh et al. (2024), who emphasized the importance of readable content, simple navigation, and user-friendly digital services. The W3C (2023) also highlights the need for accessible and understandable digital content. These studies suggest that

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Tanay Water District should improve bill readability through clear labels, proper font size and contrast, and simple explanations of charges. Providing alternative ways to access bills may also help customers who encounter difficulties with electronic copies.

3. **The level of customer satisfaction among the concessionaires of the Tanay Water District across overall service delivery, billing transparency, and customer support channels in terms of Overall satisfaction; Satisfaction with service quality; and Satisfaction with complaint handling.**

Table 3.1
The level of customer satisfaction among the concessionaires of the Tanay Water District across overall service delivery, billing transparency, and customer support channels in terms of Overall satisfaction.

INDICATORS	WEIGHTED MEAN	VERBAL INTERPRETATION	RANK
1. Overall, my experience as a Tanay Water District concessionaire is highly satisfactory.	3.02	High	2
2. The overall quality of water supply and customer care provided by Tanay Water District meets or exceeds my expectations.	2.82	High	6
3. I am fully satisfied with my decision to keep Tanay Water District as my primary domestic water provider.	3.00	High	3
4. I am happy with the changes and progress Tanay Water District is making to improve water supply.	2.95	High	5
5. I am satisfied with how fast they responded to our reported water leak.	2.99	High	4
6. I will choose Tanay Water District as our water provider if even if a new water supplier enters Tanay.	3.10	High	1
GENERAL ASSESSMENT	**2.98**	**High**	

Legend: 3.26 - 4.00 – Very High / 2.51 - 3.25 – High / 1.76 - 2.50 – Low / 1.00 - 1.75 – Very Low

The findings presented in Table 3.1 show that the level of customer satisfaction among the concessionaires of Tanay Water District obtained a general weighted mean of 2.98, verbally interpreted as High. The highest-rated indicator was *"I will choose Tanay Water District as our water provider if even if a new water supplier enters Tanay."* with a weighted mean of 3.10 interpreted as High. Meanwhile, *"The overall quality of water supply and customer care provided by Tanay Water District meets or exceeds my expectations."* received the lowest weighted mean of 2.82.

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The result suggests that respondents are generally satisfied with the District's overall service delivery, including water supply, customer care, and related services and respondents demonstrate a favorable level of loyalty toward the District. Although all indicators were rated High, the findings suggest that customers are generally satisfied but still see room for improvement in the District's service quality and ongoing efforts to improve water delivery.

Ogata et al. (2026) found that customer satisfaction is closely linked to water service quality, while Duangchampa et al. (2025) identified water pressure, timely repairs, and communication as areas needing improvement. Similarly, the Infanta Water District (2023) reported high customer satisfaction but noted areas for further improvement in water supply, quality, and payment options. These studies highlight the importance of listening to customer feedback and continuously improving services. Tanay Water District should therefore address service gaps and monitor customer concerns to maintain satisfaction and loyalty.

Table 3.2
The level of customer satisfaction among the concessionaires of the Tanay Water District across overall service delivery, billing transparency, and customer support channels in terms of Satisfaction with service quality.

INDICATORS	WEIGHTED MEAN	VERBAL INTERPRETATION	RANK
1. I am satisfied with the physical quality, clarity, and safety of the water supplied to my tap.	3.02	High	2
2. I am satisfied with the steady water pressure and continuous daily supply provided to my household.	2.82	High	6
3. I am satisfied with how quickly and effectively the district addresses and resolves the water service issues I report.	3.00	High	3
4. I am satisfied with the physical condition and maintenance of water meters, pipelines, and local facilities.	2.95	High	5
5. I am satisfied with how timely official advisories are regarding service interruptions or system maintenance.	2.99	High	4
6. I am satisfied with the district's proactive measures to minimize unscheduled water service outages	3.10	High	1
GENERAL ASSESSMENT	**2.98**	**High**	

Legend: 3.26 - 4.00 – Very High / 2.51 - 3.25 – High / 1.76 - 2.50 – Low / 1.00 - 1.75 – Very Low

The findings presented in Table 3.2 show that customer satisfaction with the service quality of Tanay Water District obtained a general weighted mean of 2.98, verbally interpreted as High. The highest-rated indicator *"I am satisfied with the district's proactive measures to minimize unscheduled water service outages"* which received a weighted mean of 3.10 verbally interpreted

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as High. Meanwhile, *"I am satisfied with the steady water pressure and continuous daily supply provided to my household."* received the lowest weighted mean of 2.82.

These shows that the concessionaires are generally satisfied with the quality of water and the District's efforts to maintain and improve its services and the respondents recognize the District's efforts to prevent unexpected service disruptions. Although all indicators were rated High, these findings suggest that maintaining consistent water pressure and ensuring a continuous supply remain important areas for improvement. The results also indicate that customers' satisfaction depends not only on water quality but also on the reliability of the distribution system and the district's ability to address service concerns.

Pietrucha-Urbanik and Rak (2026) found that continuous water supply and good water quality contribute to customer satisfaction, while Rahman et al. (2024) highlighted the importance of stable water pressure and availability. J.D. Power (2024) also emphasized the role of water quality, trust, and communication. These findings suggest that Tanay Water District should strengthen preventive maintenance, monitor water pressure, address leaks promptly, and inform customers in advance about planned interruptions to improve service satisfaction.

Table 3.3
The level of customer satisfaction among the concessionaires of the Tanay Water District across overall service delivery, billing transparency, and customer support channels in terms of Satisfaction with complaint handling.

INDICATORS	WEIGHTED MEAN	VERBAL INTERPRETATION	RANK
1. I am satisfied with how politely, empathetically, and attentively staff acknowledge my complaints.	3.06	High	2
2. I am satisfied with the technical skill and efficiency of personnel sent to fix or adjust my water service issue.	2.94	High	6
3. I am satisfied with the clarity and frequency of updates provided while my reported issue is being investigated or repaired.	2.97	High	5
4. The personnel make me feel like a priority when addressing my concerns.	3.02	High	4
5. I am satisfied with how quickly Tanay Water District responds to my complaints.	3.04	High	3
6. I am satisfied with the way Tanay Water District follows up on my complaints until they are resolved.	3.15	High	1
GENERAL ASSESSMENT	**3.03**	**High**	

Legend: 3.26 - 4.00 – Very High / 2.51 - 3.25 – High / 1.76 - 2.50 – Low / 1.00 - 1.75 – Very Low

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The date presented in Table 3.3 show that customer satisfaction with complaint handling at Tanay Water District obtained a general weighted mean of 3.03, verbally interpreted as High. The highest-rated indicator was *"I am satisfied with the way Tanay Water District follows up on my complaints until they are resolved."* satisfaction with the District's follow-up on complaints until they are resolved, with a weighted mean of 3.15. However, *"I am satisfied with the technical skill and efficiency of personnel sent to fix or adjust my water service issue."* Is the indicator that received the lowest weighted mean of 2.94.

Based on the response the concessionaires are generally satisfied with how the District receives, responds to, and follows up on their complaints. The respondents appreciate the District's efforts to monitor reported concerns and ensure that action is taken. Although all indicators were rated High, these findings suggest that the District could further improve the technical handling of reported problems and provide customers with more consistent progress updates.

Recent studies highlight the importance of timely complaint handling and clear communication. A 2026 study Complaint Response Mechanism Appraisal Using Probability Trees found that delayed responses and prolonged resolutions can lead to customer dissatisfaction, while Melad (2024) emphasized the need for proper complaint tracking and monitoring. Van Noort et al. (2023) also noted that how organizations respond to complaints can affect public trust. These findings suggest that Tanay Water District should continue following up on complaints, set clear resolution timelines, and provide regular updates until concerns are addressed.

4. A significant relationship between water supply reliability and customer satisfaction.

Table 4.
Test of Significant Relationship between water supply reliability and customer satisfaction.

WATER SUPPLY RELIABILITY	CUSTOMER SATISFACTION	rho value	P value	Remarks	Decision
RELIABILITY (CONSISTENCY OF WATER PRESSURE)	Overall Satisfaction	.470**	.000	Significant	Reject H_o
	Satisfaction with Service Quality	.503**	.000	Significant	Reject H_o
	Satisfaction with Complaint Handling	.472**	.000	Significant	Reject H_o
ASSURANCE (WATER QUALITY)	Overall Satisfaction	.478**	.000	Significant	Reject H_o
	Satisfaction with Service Quality	.542**	.000	Significant	Reject H_o
	Satisfaction with Complaint Handling	.469**	.000	Significant	Reject H_o
TANGIBLES	Overall Satisfaction	.478**	.000	Significant	Reject H_o

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(PHYSICAL CONDITION OF WATER METERS AND FACILITIES)	Satisfaction with Service Quality	.421**	.000	Significant	Reject H_o
	Satisfaction with Complaint Handling	.464**	.000	Significant	Reject H_o
EMPATHY (HANDLING OF CONCESSIONAIRES' WELFARE)	Overall Satisfaction	.562**	.000	Significant	Reject H_o
	Satisfaction with Service Quality	.524**	.000	Significant	Reject H_o
	Satisfaction with Complaint Handling	.579**	.000	Significant	Reject H_o
RESPONSIVENESS (SPEED OF ADDRESSING COMPLAINTS AND WATER INTERRUPTIONS)	Overall Satisfaction	.510**	.000	Significant	Reject H_o
	Satisfaction with Service Quality	.533**	.000	Significant	Reject H_o
	Satisfaction with Complaint Handling	.472**	.000	Significant	Reject H_o
SECURITY (DATA PRIVACY AND SAFETY IN HANDLING CUSTOMER ACCOUNT INFORMATION)	Overall Satisfaction	.464**	.000	Significant	Reject H_o
	Satisfaction with Service Quality	.447**	.000	Significant	Reject H_o
	Satisfaction with Complaint Handling	.495**	.000	Significant	Reject H_o

Note: Significant if $p<0.05$

Size of Correlation	Interpretation
.90 to 1.00 (−.90 to −1.00)	Very high positive (negative) correlation
.70 to .90 (−.70 to −.90)	High positive (negative) correlation
.50 to .70 (−.50 to −.70)	Moderate positive (negative) correlation
.30 to .50 (−.30 to −.50)	Low positive (negative) correlation
.00 to .30 (.00 to −.30)	negligible correlation

Table 4 presents the test of the significant relationship between water supply reliability and customer satisfaction. The results indicate that all dimensions of water supply reliability, namely reliability, assurance, tangibles, empathy, responsiveness, and security, have significant positive relationships with customer satisfaction indicators such as overall satisfaction, satisfaction with service quality, and satisfaction with complaint handling. All computed p-values were reported

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as .000, which are below the 0.05 level of significance level, thereby leading to the rejection of the null hypothesis in all cases. Among the dimensions, Empathy (handling of concessionaires' welfare) showed the highest correlation with Satisfaction with Complaint Handling (ρ = .579), followed by its relationship with Overall Satisfaction (ρ = .562). On the other hand, the lowest correlation was observed between Tangibles (physical condition of water meters and facilities) and Satisfaction with Service Quality (ρ = .421). These findings suggest that customers place greater importance on how the water service provider addresses their welfare and concerns compared to the physical aspects of service facilities.

The significant positive correlations indicate that improvements in water supply reliability are associated with higher levels of customer satisfaction. The moderate correlation coefficients ranging from .421 to .579 imply that as customers perceive better consistency of water pressure, water quality, responsiveness, empathy, security, and facility conditions, their satisfaction with the service also increases. The strongest relationship between empathy and complaint handling satisfaction suggests that customers highly value being treated with concern, respect, and attention when issues arise. Meanwhile, the relatively lower correlation involving tangibles indicates that although physical facilities contribute to customer satisfaction, they may not influence customers as strongly as interpersonal and service-related factors. Overall, the findings imply that water service providers can enhance customer satisfaction by prioritizing customer-centered services, prompt response mechanisms, and welfare-oriented approaches while maintaining reliable water delivery and quality standards.

5. A significant relationship between Digital Billing Effectiveness and Customer Satisfaction.

Table 5

Test of Significant Relationship between digital billing effectiveness and customer satisfaction.

DIGITAL BILLING EFFECTIVENESS	CUSTOMER SATISFACTION	rho value	P value	Remarks	Decision
ACCURACY (CORRECTNESS OF BILLED AMOUNTS AND CONSUMPTION HISTORY)	Overall Satisfaction	.528**	.000	Significant	Reject H_o
	Satisfaction with Service Quality	.438**	.000	Significant	Reject H_o
	Satisfaction with Complaint Handling	.499**	.000	Significant	Reject H_o
ACCESSIBILITY (EASE OF RETRIEVING, VIEWING, AND PAYING BILLS ONLINE	Overall Satisfaction	.481**	.000	Significant	Reject H_o
	Satisfaction with Service Quality	.445**	.000	Significant	Reject H_o
	Satisfaction with Complaint Handling	.498**	.000	Significant	Reject H_o
TIMELINESS (PROMPTNESS OF	Overall Satisfaction	.566**	.000	Significant	Reject H_o
	Satisfaction with Service Quality	.485**	.000	Significant	Reject H_o

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RECEIVING ELECTRONIC BILLING STATEMENTS	Satisfaction with Complaint Handling	.464**	.000	Significant	Reject H_o
USABILITY (USER-FRIENDLINESS OF THE DIGITAL BILLLING INTERFACE AND NOTIFICATION CHANNELS)	Overall Satisfaction	.613**	.000	Significant	Reject H_o
	Satisfaction with Service Quality	.507**	.000	Significant	Reject H_o
	Satisfaction with Complaint Handling	.567**	.000	Significant	Reject H_o

Note: Significant if $p<0.05$

Size of Correlation	**Interpretation**
.90 to 1.00 (−.90 to −1.00)	Very high positive (negative) correlation
.70 to .90 (−.70 to −.90)	High positive (negative) correlation
.50 to .70 (−.50 to −.70)	Moderate positive (negative) correlation
.30 to .50 (−.30 to −.50)	Low positive (negative) correlation
.00 to .30 (.00 to −.30)	negligible correlation

Table 5 presents the test of significant relationship between digital billing effectiveness and customer satisfaction. The findings reveal that all dimensions of digital billing effectiveness, namely accuracy, accessibility, timeliness, and usability, have significant positive relationships with customer satisfaction as reflected in overall satisfaction, satisfaction with service quality, and satisfaction with complaint handling. All computed p-values were .000, which are lower than the 0.05 level of significance, leading to the rejection of the null hypothesis in all indicators. Among the dimensions, Usability (user-friendliness of the digital billing interface and notification channels) exhibited the highest correlation with Overall Satisfaction ($\rho = .613$), while Accuracy (correctness of billed amounts and consumption history) showed a strong relationship with Overall Satisfaction ($\rho = .528$). Conversely, the lowest correlation was observed between Accuracy and Satisfaction with Service Quality ($\rho = .438$). These results suggest that customers highly value a user-friendly and convenient digital billing system, which greatly influences their overall satisfaction with the utility service.

The significant positive correlations indicate that the effectiveness of digital billing systems plays an important role in enhancing customer satisfaction. The correlation coefficients ranging from .438 to .613 suggest a moderate to strong relationship, implying that improvements in billing accuracy, online accessibility, prompt delivery of billing statements, and ease of use contribute to higher levels of customer satisfaction. The strongest relationship between usability and overall satisfaction demonstrates that customers are more satisfied when digital billing platforms are easy to navigate and understand. Meanwhile, the relatively lower correlation between accuracy and satisfaction with service quality implies that although correct billing is essential, customers may

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place greater importance on the overall convenience and functionality of the digital billing service. Overall, the findings indicate that investing in efficient, accessible, timely, and user-friendly digital billing systems can substantially improve customers' perceptions of service quality and their overall satisfaction.

These results are supported by Jou et al. (2022), who found that online utility payment service quality is linked to customer satisfaction. Bajador (2025) also emphasized the role of system usability, while Resurreccion and Alvarez (2025) highlighted efficiency and reliability. These studies reinforce the need for an accurate, accessible, and user-friendly billing system to improve customer satisfaction at Tanay Water District.

CONCLUSIONS

Based on the findings of the study, water supply reliability and digital billing effectiveness are important factors associated with customer satisfaction among concessionaires of Tanay Water District. The results indicate that the quality and consistency of water services, together with the accuracy, accessibility, timeliness, and usability of digital billing, contribute to customers' overall assessment of the district's services.

The findings also indicate significant positive relationships between digital billing effectiveness and customer satisfaction, including satisfaction with overall service quality and complaint handling. In particular, usability showed the strongest relationship with overall satisfaction, highlighting the importance of a convenient and user-friendly billing system. These results suggest that customers value not only reliable water supply but also efficient and accessible billing services.

Therefore, Tanay Water District should continue improving the reliability of its water supply, maintaining accurate and timely billing information, enhancing the accessibility and usability of its digital billing system, and strengthening its response to customer concerns. By addressing these areas, the district can further improve service delivery, strengthen customer trust, and promote greater satisfaction among its concessionaires.

RECOMMENDATIONS

Based on the findings and conclusions of the study, Tanay Water District is encouraged to strengthen its water supply monitoring by conducting regular inspections of pumping stations, booster pumps, and distribution facilities to identify potential problems before they cause service interruptions. The District should also establish a systematic schedule for monitoring water pressure and water quality, and promptly inform affected concessionaires about scheduled maintenance and unexpected interruptions. Regarding digital billing, the District should regularly verify billing data before statements are issued, ensure that bills are delivered on time, and provide accessible channels through which concessionaires can view and clarify their billing information. Since usability showed the strongest relationship with overall customer satisfaction, the District should simplify the digital billing interface, provide clear instructions for accessing bills, and assist customers who experience difficulty using the system. Moreover, the Commercial Services

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Division should maintain a customer complaint monitoring system that records the date each complaint is received, the nature of the concern, the actions taken, and the date of resolution. This system may help ensure timely follow-up and accountability. The District should also conduct customer satisfaction surveys regularly and use the results to identify recurring concerns and prioritize service improvements. Finally, future researchers may conduct similar studies involving other water districts or examine additional factors, such as water affordability, frequency of service interruptions, and customer support, to further understand the factors associated with customer satisfaction in water utility services.

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ACTION PLAN

KEY RESULTS AREAS	OBJECTIVES	STRATEGIES/ACTIVITY	PERSONS INVOLVED	RESOURCES	ESTIMATED BUDGET	TIMELINE/PROJECT TIME FRAME	SUCCESS INDICATOR
Water Supply Reliability	Ensure consistent and reliable water supply.	Conduct monthly inspections of pumping stations, booster pumps, and distribution facilities; document and address identified defects.	Engineering Division, Operations and Maintenance Personnel	Inspection forms, maintenance tools, transportation, testing equipment	30,000.00	Monthly	100% of scheduled inspections completed and findings documented monthly.
Water Pressure and Quality Monitoring	Maintain acceptable water pressure and safe water quality.	Conduct scheduled pressure monitoring and water quality testing; implement corrective measures for results beyond standards.	Engineering Division, Water Resources Division	Pressure gauges, water testing supplies, monitoring forms	40,000.00	Monthly monitoring; quarterly evaluation	Monitoring results documented and corrective actions initiated for all identified noncompliance issues.
Digital Billing Accuracy	Minimize errors in billing statements.	Implement a monthly billing verification checklist and reconcile meter readings, consumption records, and billing amounts before issuing statements.	Commercial Services Division, Meter Readers, Billing Personnel	Billing records, computers, verification checklist	10,000.00	Monthly	Billing errors are tracked and reduced.
Digital Billing Accessibility and Usability	Make digital billing easier to access and understand.	Review the current billing platform, simplify instructions, provide a frequently asked questions guide, and assist concessionaires who encounter difficulties.	Commercial Services Division, Customer Service Personnel	Computers, internet access, user guides, information materials	25,000.00	System review within 3 months; improvements within 6 months	User guide available; customer assistance provided; usability concerns documented and addressed.
Timeliness of Digital Billing	Ensure that billing statements are issued and delivered on schedule.	Establish a billing calendar, monitor statement generation and delivery, and record delayed or undelivered bills for follow-up.	Commercial Services Division, Billing Personnel	Billing calendar, customer database, monitoring reports	10,000.00	Begin within 1 month; monitored monthly	At least 95% of billing statements issued and delivered within the district's approved billing schedule.
Customer Complaint Handling	Improve the speed and accountability of complaint resolution.	Maintain a complaint monitoring log containing the date received, complaint type, responsible personnel, actions taken, and resolution date; review unresolved cases weekly.	Commercial Services Division, Customer Service Personnel, Engineering Division, Management	Complaint log, computer, communication materials	10,000.00	System established within 3 months; weekly monitoring	100% of complaints recorded and assigned for action; at least 90% resolved within the district's established service standards.
Customer Satisfaction Assessment	Measure customer satisfaction and identify areas for improvement.	Conduct customer satisfaction surveys, analyze feedback, and prepare recommendations for management review.	Commercial Services Division, Management	Survey forms, online survey tools, data analysis materials	5,000.00	Every 6 months	Customer satisfaction assessments conducted annually, with documented results and recommended actions.
Performance Monitoring and Evaluation	Track improvements in water services and digital billing.	Prepare quarterly performance reports covering service interruptions, billing errors, on-time statement delivery, complaint resolution, and customer satisfaction.	Engineering Division, Commercial Services Division	Performance reports, monitoring templates, computers	5,000.00	Quarterly	Four performance reports prepared annually and reviewed by management.
TOTAL ESTIMATED BUDGET					**135,000.00**		

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