CASE STUDY

Leapfrog in Performance in the Philippines Water Sector with Enhanced Operational Efficiency and Workforce Capabilities Using a Generative AI- Based Digital Knowledge Companion (DKC)

BACKGROUND AND CHALLENGE

Balibago Waterworks System, Inc (BWSI), a leading private water operator in the Philippines, has been dedicated to community growth and quality services since 1958. Serving over two million people across 90 franchises in Luzon, Visayas, and Mindanao, BWSI is renowned for its efficient operations. To further enhance service quality, BWSI is transitioning from reactive to proactive and predictive maintenance using Generative AI. This shift aims to improve operational asset performance, reduce non-revenue water (NRW), and boost workforce capabilities. Key goals include providing easy access to maintenance insights, capturing field expertise, improving visibility and tracking of activities, and centralizing information through AI-enabled conversations to streamline knowledge management and work processes.

BALIBAGO WATERWORKS

USE CASES

The Digital Knowledge Companion (DKC) has proven effective in:

LEAK SURVEY AND REPAIRS
Simplifies task assignments and tracking. Provides SOP guidance and knowledge insights. Automates reporting and leak calculations.

PREVENTATIVE MAINTENANCE AND SAFETY
Quick access to SOPs, manuals, and reports. Enhances safety toolbox and performance tracking.

### CORRECTIVE MAINTENANCE AND TROUBLESHOOTING
Offers root cause analysis and best practices. Captures knowledge and automates reporting. Enriches the knowledge base with real-time data.

TECHNOLOGY & SOLUTION IMPLEMENTED

BWSI trialed an AI-powered Digital Knowledge Companion (DKC) that uses Large Language Model and Knowledge Graph for maintenance and leak investigation in the Water Supply Network in Capas and the Water Treatment Plant at Arayat.

DKC supports workforce through Knowledge Access and Sharing, Knowledge Capture and Retention and Intelligent SOP Support & Scheduling

Over an 8-month period, the DKC was implemented, rigorously tested, and refined based on feedback. Integration into familiar platforms like WhatsApp improved user accessibility and experience. The DKC continuously captures asset data, SOPs, historical information, and troubleshooting guides, ensuring ongoing learning and accessibility across all levels.
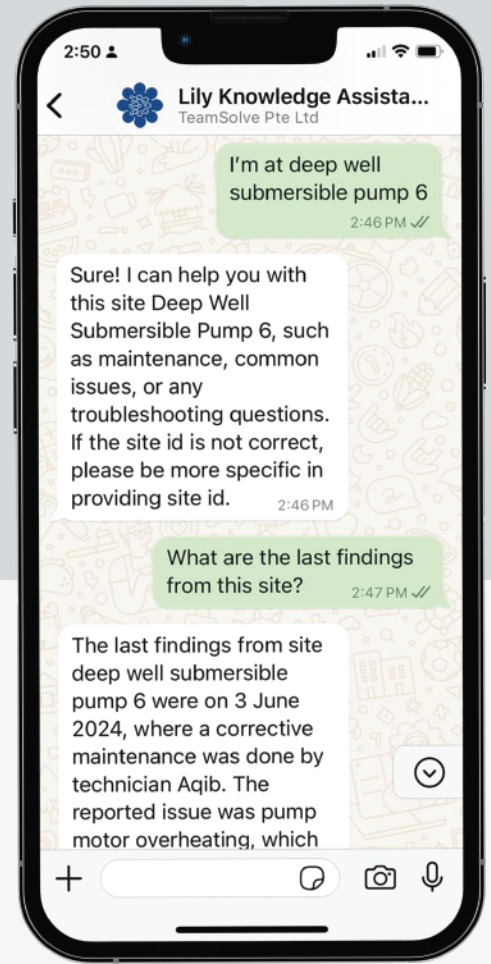
> *"Balibago has always believed that a knowledgeable workforce is more productive and effective. Our partnership with TeamSolve underscores the transformative power of AI in boosting the performance of digitally emerging utilities. The integration of this AI-enabled knowledge insights platform for new workflows shows great promise in reshaping BWSI's operational and workforce capabilities with more proactiveness, greater consistency and visibility as we continue to expand our franchises."*

Ms. Cristina P. Alejandro, BWSI President

OUTCOMES AND FUTURE DIRECTION

Implementing the DKC significantly enhanced BWSI's service delivery and projected ROI:

## DIGITALIZED AND STREAMLINED OPERATIONS
Improved workflows for safety, leak survey/repair, and maintenance led to >20% asset performance improvement, 50% time savings, and 100% improved safety culture.

FASTER TASK HANDLING
Enhanced leak investigation and maintenance tasks resulted in 30-50% scheduling efficiency and reduced NRW over time.

KNOWLEDGE PRESERVATION AND INSIGHTS
Effective knowledge sharing and visibility increased business resilience, procurement savings, and accelerated onboarding by 5x.
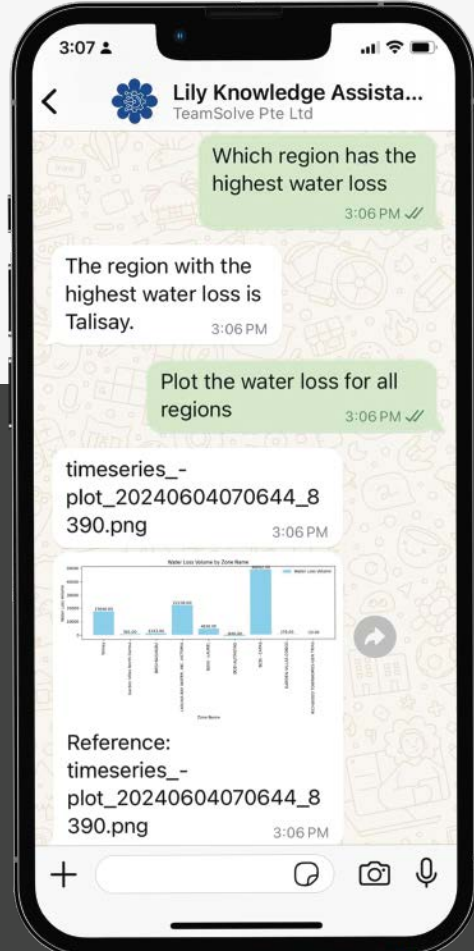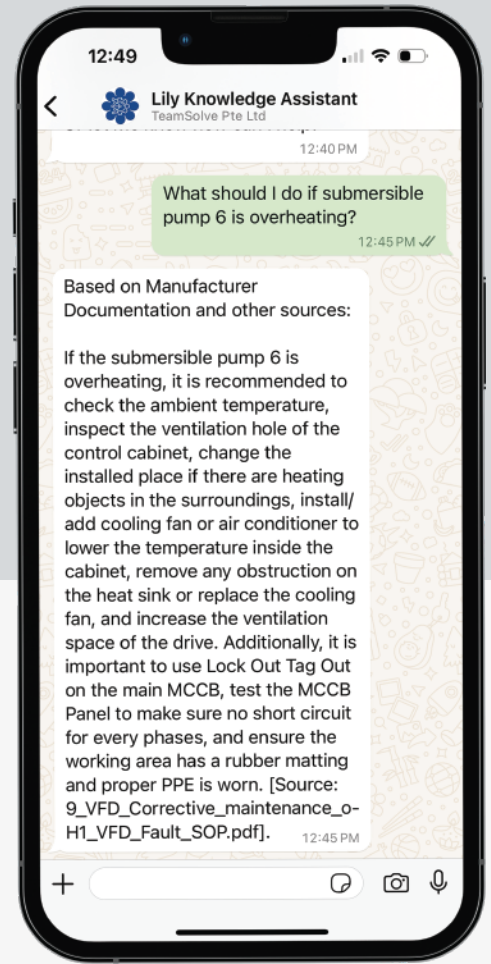
USER SATISFACTION
High approval ratings for user-friendliness and ease of interaction, boosting employee satisfaction.

Building on the success of the DKC and the strong trial partnership, recommendations on continued application of AI for BWSI include supporting BWSI's digital transformation through effective change management, continuous learning, and job redesign. Enhancing DKC training and user experience with new features like improved visualization and Tagalog support and expanding the adoption of DKC across other units and workflows. Additionally, advancing proactive notifications and analytics for predictive maintenance, improving onboarding processes, and enhancing knowledge lifecycle management.

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