Business challenge

To keep pace with the region's growth and its customers' increasingly sophisticated expectations when interacting with the county, Miami-Dade WASD sought a chatbot solution to provide around-the-clock customer assistance for general requests and questions.

Transformation

The Miami-Dade Water and Sewer Department (WASD) is one of the nation's largest water utilities, serving 436,000 customers. When its call center was overwhelmed by increasing volumes of customer inquiries, WASD worked with IBM to develop a virtual assistant to handle payment processing and other simple requests. The result: highly satisfied customers and employees.

Results

Reduces contact center wait times
by handling over 3,000 customer transactions a month

Improves the customer experience
with personalized customer assistance available 24/7

Boosts contact center resource efficiency
by increasing agent productivity and reducing the need to hire new agents

Miami-Dade County

Water utility calls on Watson to deliver a modernized customer experience

Miami-Dade County covers more than 2,000 square miles along the southeast tip of the state of Florida in the US. The county government serves more than 2.3 million citizens, as well as visitors to the area. Its Water and Sewer Department maintains more than 7,700 miles of underground water lines and approximately 6,200 miles of sewer line. The county is the most populous in Florida and comprises 34 incorporated municipalities, cities, towns and villages, as well as unincorporated communities and neighborhoods.

"IBM is a trusted partner we can count on to maintain a high level of innovation and excellence. That's why we've chosen IBM to facilitate our AI journey."

—Carmen Suarez, Assistant Director, Information Technology Department, Miami-Dade County

Share this

A mission to deliver customer excellence

When it comes to hearing from customers, no news is usually good news for Miami-Dade WASD. That may seem counterintuitive for a service-based utility. But when WASD is fulfilling its role of delivering safe, reliable water and wastewater services to the county's citizens—with no outages or emergencies—there is very little reason for customer interaction, other than for billing inquiries.

When customers do contact the department, exemplary service is a high priority, as is reflected in the county's motto, "We deliver excellence every day." That commitment extends across the county's 26 departments, which cover everything from animal services to tax collection.

Fulfilling that mission means staying on top of the latest technological devices and tools—such as smart phones, tablets and personal assistants. "Our constituents expect government to service them according to the general consumer trends they're accustomed to," says Carmen Suarez, Assistant Director for the Miami-Dade County Information Technology Department.

"We're in the process of converting many of our legacy applications to incorporate the digital services people use every day," she continues. "That can be challenging. But it's also very exciting, because everything we do is a public service, so there's satisfaction in giving Miami-Dade County constituents good services for their tax dollars."

As with the other county departments, WASD operates on limited funding. Taxes provide a significant revenue source, and WASD's funds are primarily allocated to the purchase and maintenance of the physical systems—pipes, pumps and treatment systems—needed to keep water supply and wastewater services running smoothly for its 436,000 customers.

Recently, WASD faced an issue that was negatively impacting those customers. Its billing call center was only open on weekdays during business hours. Customers were inconvenienced by having to call during their own workdays, and bottlenecks often resulted in long wait times. Adding personnel was too expensive, and an interim solution of routing overflow calls to the county's 3-1-1 nonemergency call center also proved cost-prohibitive and ineffective.

WASD needed a way to provide timely, efficient and personalized customer assistance to customers 24 hours a day, 7 days a week. The IT department started looking into using AI to create a new channel for engaging customers via a chatbot. They not only examined training requirements and the accuracy of various solutions, but also the ability to integrate transactional capabilities, such as online bill payment.

AVA boosts efficiency, customer satisfaction

The county engaged IBM® Services® and IBM Watson® Lab Services to develop a chatbot based on the IBM Watson Assistant service delivered on the IBM Cloud™. Other chatbots provide a conversational interface for answering basic FAQs. The IBM solution, dubbed "AVA"—or Automated Virtual Assistant—integrates customer account data and a core knowledge base to provide personalized responses to customer requests, such as upcoming billing amounts or payment options.

Users access AVA via an "Ask AVA" button on the WASD web portal. Currently, AVA specifically answers questions about WASD transactions, but the county hopes to expand use into other departments. AVA is available around the clock, offering an enhanced service level that WASD is very happy with.

Training the chatbot was a critical piece of the project. The IBM team and WASD subject matter experts started with a repository of recorded customer conversations logged in the WASD contact center. Using the IBM Watson Natural Language Classifier service, they categorized the unstructured audio content by subject matter to create a library of commonly asked FAQs.

According to Suarez: "Watson™ Natural Language Classifier helps AVA understand a question presented in multiple ways. One customer will say, 'I want to pay my bill,' and another will say, 'Where can I pay my bill?' A third person will say, 'How can I pay my bill?' And AVA will understand all three forms of that question."

Initially, WASD employees were hesitant to embrace the AVA chatbot due to concerns that it would ultimately take over their jobs. Their doubts quickly dissipated in the process of helping train AVA. When they saw how AVA could aid—not replace—them in doing their work, they fully came on board.

The WASD Watson Assistant implementation with AVA operates in a multicloud environment, comprising Watson Assistant on the IBM Cloud, a third-party e-commerce application in a bank clearinghouse cloud, on premises web services in the WASD private cloud, and a back-office customer care and billing system running on dedicated IBM hardware.

The hybrid cloud environment provides an extra level of protection—an especially vital attribute in the Miami area, which is in a hurricane zone. "During an emergency, we want to be able to provide as much support to constituents as when

there is no emergency," says Suarez. "We try to build our systems so an emergency isn't going to hinder our level of response. And a hybrid cloud environment, such as Watson Assistant in the IBM Cloud, is a good solution for that."

Expansion across county departments

WASD employee satisfaction has improved significantly as a result of the AVA chatbot. Call center employees can now focus on more complex calls, such as those from major developments running multiple water meters, while AVA assists with simpler transactions, such as bill payment or payment extensions. In the month of September 2019 alone, AVA handled over 3,000 transactions.

According to Suarez, the IT team is also benefiting: "We have a scalable, dependable architecture that won't fail, is not costly to maintain and is not labor intensive to support. Our internal IT staff can devote more attention to business operations rather than server support, patching or similar tasks. The goal is to have managed services WASD can integrate with its other systems to create efficiencies and make its services faster and easier to deploy."

"Customer satisfaction has increased exponentially," says Suarez. "People sometimes request payment extensions on their water bills. WASD has automated that process through the AVA chatbot so constituents can make payment arrangements 24/7. Currently, 5 percent of all payment extension requests are made using AVA. It might not seem like a high percentage, but it's a very good level of adoption."

Within the next two years, the county anticipates a major expansion of its AVA implementation to cover services in all 26 departments. In the process, it plans to increase integrations with back-office systems for e-commerce and to automate fulfillment for such items as transit pass cards or zoo store purchases.

Adoption is already in the planning phases in the Animal Services Department, where the county is looking to enable speech-to-text capabilities. The department is also exploring other Watson capabilities, such as using the Discovery function to provide automated answers to email inquiries about pet adoptions, so employees can focus more on pet care.

To other organizations considering AI adoption, Suarez has this advice: "Be fearless—don't be reckless, but don't be afraid to fail. Experimentation and doing the research can improve your services immensely. Go for it."

Solution components

- IBM® Services®
- IBM Cloud™
- IBM Watson® Assistant
- IBM Watson Natural Language Classifier

Take the next step

To learn more about the IBM solutions featured in this story, please contact your IBM representative or IBM Business Partner.

17030917USEN-00