HID Global RFID Cards Are Tapped to Play a Key Role in Brazil's Secure, Reliable Water Delivery System for Citizens

CHALLENGES:

Approximately three million people across the semi-arid countryside of Eastern Brazil lack access to clean, safe water. These communities are not served by water being piped in, and their only option is to rely on federal aid and delivery by truck. This humanitarian crisis is one of the country's biggest challenges. Much of the population lives in isolated locations without sufficient roads or access to conventional water distribution infrastructure. Artesian wells are generally unsafe for human consumption, and in general it's difficult to locate groundwater in this rocky region.

Brazil's federal government, army and state governments are responsible for trucking water to five million people across a region the size of France and Germany combined. Some systems focus on delivery in urban settings. Others must support populations living in remote areas wrought with drought, rocky subsurface, and literally no actual address — just map coordinates. In addition, all is orchestrated without cellular coverage in these rural destinations.

One set of challenges was the logistics around deliveries and vehicle maintenance, and the more than $250 million USD in annual costs associated with maintaining transportation fleets. Another was high levels of fraud that prevented water from reaching its destination. Many deliveries were hijacked along the way to the intended recipient. The paper tickets validating resident entitlement to a monthly water delivery were also cumbersome to manage and easily misplaced and manipulated. The government sought a technology partner that could offer a more affordable solution to track, identify and drive efficiencies throughout the water delivery process while reducing fraud and ensuring data security.

The government tapped into the technology resources from TOMUS, an HID Global partner dedicated to providing technology services to support sectors such as logistics, sanitation, energy, health, agriculture, water delivery and more. Based in Brazil, the TOMUS team understood the challenges at hand. They recognized the need to select an identification system that was innovative yet simple for any of Brazil's citizens to use, including the large percentage who cannot read or write and are unaccustomed to working with technology.

TOMUS designed a solution tailored to meet the requirements of this complex delivery management system. They selected the HID Global RFID Secure Reader Module SE® to provide the critical authentication piece of the project, enabling those transporting and receiving water to identify themselves through RFID cards from different technologies and frequencies. HID offers the industry's widest selection of open, secure readers and credentials — and their proven RFID technology is the ideal solution for this application based on the company's strong reputation as a robust, trusted source of security and identity products used across local and national government entities and American embassies.

"It was imperative we partner with an organization that offers secure RFID reader modules, credential customization and incredible encryption given the nature of this project for Brazil's government, army and countrywide security hurdles," said David Peixoto, Executive Director, TOMUS. "We needed a highly qualified team to deliver the right tools for precise management of liquid supplies, and the pairing here between TOMUS and HID Global proved a perfect fit."

The solution is comprised of best-in-class hardware and software that's highly secure and intuitive. The TMS Collector reader devices are installed in the tanker delivery trucks, and are complemented by an HID Secure Reader Module SE® that supports a variety of credential technologies, frequencies and can include different levels of security according to the customer or project's needs. Each citizen's card also includes their map coordinates to serve as a password for verifying their authorization to receive water. All information is gathered during the program's registration process for beneficiaries, water reservoirs and water trucks.

The program's multi-factor authentication solution drastically reduces fraud. When water is delivered, the TOMUS device inside the truck validates the delivery location upon arrival. A second confirmation is attained when the driver taps his/her RFID card. Finally, a third level of authentication is secured when the civilian's RFID card is utilized. If anything is suspicious along the way, the TOMUS system flags a warning. Executed routes are compared with planned deliveries, and at the close of each cycle the system calculates how much each driver should be paid according to their productivity. The process allows clients to plan, manage and monitor the entire operation in an efficient, automated manner.

"We are now managing almost 100 percent of the water deliveries done at the state and federal level, and that's often 8,000+ stops in a single day working through 4,500+ tanker trucks. The project is massive, the details are complex, yet the system we created is simple and sophisticated — and much of that is attributed to the technological prowess of HID Global and the expertise of TOMUS engineers. It's an ideal partnership and an application that delivers drastic improvements and can be applied to many other areas of logistics involving delivery management between governments and citizens."

David Peixoto
Executive Director,
TOMUS

HID

RESULTS:

Today, the Brazilian government is reassured that critical resources reach its citizens without delay or duplicity. The TOMUS system featuring HID Global technology allows for the identification of vehicles, operators and recipients. All details are managed and automated for the Brazilian government and army battalions leveraging the customized system and through the use of ruggedized and reliable RFID technology. Logistics, ongoing/end-of-month reporting and more are streamlined, secure and intuitive.

The complexities handled in the background by TOMUS and HID Global realize big outward-facing benefits for Brazilians, including:

- A simple yet sophisticated system for civilians that involves simply the touch of a card

- 99.86 percent accuracy in secure, accurate deliveries day in and day out based on robust hardware/software technologies

- Comprehensive reporting and guarantee of 100,000 to 200,000 water deliveries each month to citizens truly in need across 800 cities throughout Brazil

- More than 25 percent reduction in operations costs and fraud reduction

- A program adoption rate that grew from 5 percent of the region's 27 army battalions using the system for water distribution in 2013 to 97.3 percent of the federation's Water Tank Truck Operations today relying on the custom-built TOMUS monitoring solution