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Solution: **AI/Watson** Industry: **Industrial Products**

# Nation Waste, Inc.

Preventing injuries in the workplace using real-time safety monitoring through wearables and the IoT

In the US alone, nearly 5,000 people die and around 27 million work days are lost each year as a result of injuries in the workplace. To keep workers safe and mitigate the cost of workplace injuries, Nation Waste, Inc. is launching a new division, Nation Safety Net, which will leverage a technology solution powered by IBM Watson IoT that helps workers avoid occupational hazards.



## Business challenge

Workplace injuries can have devastating impacts on individuals and their families and generate huge costs for businesses. Could IoT technology help Nation Waste find a new way to keep employees safe?

## Transformation

Working with IBM, Nation Waste, Inc. is creating Nation Safety Net, a division powered by an IoT solution that uses environmental sensors and wearable devices to identify potential dangers and help employees avoid injury.

## Results

Unlocks	Enables	60%
the potential to reduce workplace injuries, strengthening employee safety	increased productivity and streamlines safety management and processes	reduction in injury-related costs predicted for users of the solution

## Business challenge story

### An opportunity to save lives

In many industries, the workplace can be a dangerous environment. In one year alone, 5,190 people died in the USA as a result of fatal work injuries, and more than 2.8 million workers suffered

non-fatal injuries. In more than 800,000 cases, employees had to take time away from work to recover, with an average of eight days away from work per case.

The facts and figures indicate the scale of the problem and allow us to extrapolate the cost to the economy—but the impact of workplace injuries on the lives of workers, their families and businesses cannot be quantified. The consequences of workplace injury are felt in every aspect of personal and professional lives and can be permanently life-changing for the people involved.

Nation Waste, Inc., a Houston-based commercial waste disposal company, decided to take action. Maria Rios, the company's President and CEO, elaborates: "We are acutely aware of the potentially adverse safety impact of dangerous substances, heavy machinery and hazardous objects. Safety is always on our minds. The same is true for our clients—especially in sectors like construction or oil and gas, where working in hazardous environments is part of everyday life.

"Even with robust regulation and comprehensive training, accidents and injuries in the workplace still occur, and we need to take every opportunity to make the working environment safer. In addition to the human cost, injuries at work have a significant operational impact: reducing productivity, increasing insurance and litigation costs, and potentially causing reputational damage, too."

Maria Rios started thinking about how Nation Waste Inc. could help employees stay out of harm's way. If workers were prompted to take a break as soon as they start experiencing fatigue, heat exhaustion or dehydration, how much more

productive might they become? If managers could track incidents and near-misses in real-time, how many broken bones could be avoided? If staff had direct access to emergency services hardwired into their uniform, how many lives could be saved each year?

To answer these questions, Nation Waste, Inc. set out to create a solution based around wearable sensors that could help monitor working conditions, detect accidents and near misses as they occur, and provide immediate feedback to help workers stay safe. The company needed a partner with the technology and expertise to transform this revolutionary idea into a reality.

Maria Rios continues: “We knew that developing a wearable solution would not only help save lives, but could also radically transform our business model, providing us with the opportunity to bring a first-of-a-kind product to the global market. We acted fast and started to look for a partner who could help us make the project come to life.”

“Fewer injuries will help our clients mitigate the litigation and insurance costs associated with workplace injury—with potential cost savings of around 60 percent.”

—Maria Rios, President & CEO, Nation Waste, Inc.

## Transformation story

Bringing health and safety into the future





To deliver its vision, Nation Waste Inc. joined forces with IBM. The team is using the IBM IoT Safer Workplace solution to develop the Nation Safety Net—a wearable solution designed to help workers avoid injury.

Maria Rios explains: “The Nation Safety Net is a comprehensive hazard detection solution that can be easily incorporated with a worker’s uniform. The solution contains a range of sensors, including an

accelerometer that measures employee movement to help detect a fall or collision; and heat sensors and heartrate monitors to help spot overheating or fatigue.

“These sensors are integrated with an algorithm that we are currently testing to detect and identify conditions that indicate a potential hazard, such as sudden vertical movements, high temperatures, unusual heartrates, an employee working without a hard hat, or an employee in an unsafe area.”

The IBM IoT Safer Workplace solution connects the Nation Safety Net sensors to the Internet of Things and also provides the advanced analytics and cognitive computing capabilities that enable the device to detect dangerous situations and notify wearers.

“When the Nation Safety Net detects a hazard, it will alert employees via a vibration, alarm or flashing light, so they can act immediately,” adds Maria Rios. “What’s more, managers will be able to log into a dashboard via mobile or tablet devices and get a clear overview of the safety status of each worker, as well as receiving immediate notifications when an accident or an emergency occurs —strengthening workplace safety.”

She continues: “IBM IoT Safer Workplace makes all of this possible. We deployed this solution because it could provide us with the cognitive analytics capabilities that we needed to be able to transform Nation Safety Net from a collection of isolated sensors into a smart, interconnected network that enhances employee wellbeing.

“Our alliance with IBM will help our clients transform the way they manage workplace safety.

IBM is a true champion of small business and entrepreneurs and is supporting us every step of the way in the development of Nation Safety Net. The IBM team always goes the extra mile to help solve any issues we encounter.”

Nation Waste, Inc. is currently preparing to pilot Nation Safety Net with a sample of its clients and aims to launch the solution to the global market within a year.

“With Nation Safety Net powered by IBM IoT Safer Workplace, our forecasts indicate that profit margins should increase by at least 40 percent and revenues by 150 percent over the next five years.”

—Maria Rios, President & CEO, Nation Waste, Inc.

## Results story

### Saving lives while saving money



IBM IoT Safer Workplace is empowering Nation Waste, Inc. to develop a product that will help its

clients reduce the frequency and severity of workplace injuries, while at the same time boosting productivity and creating new revenue streams.

Maria Rios says: “With IBM IoT Safer Workplace, we have been able to accelerate our time to market dramatically and get even closer to a global launch date for Nation Safety Net—enabling us to put our innovative ideas into practice rapidly. We believe that Nation Safety Net will help to save many lives, so we are keen to get it online as quickly as possible.”

As well as helping to reduce the number of cases of workplace injuries around the world, Nation Waste Inc. anticipates that the IoT solution could help diminish the severity of injuries, by giving employees the foresight to take the kind of split-second action that saves lives.

Maria Rios comments: “If we can help people avoid injury and cultivate a culture of wellness in the workplace, we will enable businesses around the world and across sectors to make huge gains in productivity—a real win-win for both employees and businesses.”

She adds: “Fewer injuries will help our clients mitigate the litigation and insurance costs associated with workplace injury—with potential cost savings of around 60 percent. We expect to start seeing these benefits ourselves as we roll out Nation Safety Net for our own employees, as well.”

By helping to revolutionize the way companies keep their employees safe in the workplace, Nation Waste is opening up its business to new, global revenue streams, supporting continued growth for years to come.



Maria Rios concludes: “IBM technology is empowering us to take business development to the next level and transform Nation Waste, Inc. into a company with a true global reach. With Nation Safety Net powered by IBM IoT Safer Workplace, our forecasts indicate that profit margins should increase by at least 40 percent, and revenues by 150 percent over the next five years. This will strengthen our ability to keep investing in next-generation technology and help us continue to develop new ways to improve safety in the workplace.”



## About Nation Waste, Inc.

Nation Waste Inc. is a fully certified commercial waste disposal company specializing in construction, demolition, commercial, and industrial non-hazardous waste removal, portable toilets and recycling services. The company offers a full range of compactor, front-end load dumpsters, and large roll-off waste container solutions.

## Solution components

CBDS-Connected Solutions

Enterprise Asset Management

## Take the next step

IBM is an established leader in the Internet of Things with more than 6,000 client engagements in 170 countries, a growing ecosystem of over 1,400 partners and more 750 IoT patents which together help to draw actionable insight from billions of connected devices, sensors and systems around the world. For more information on IBM Watson IoT, please visit [ibm.com/iot](https://ibm.com/iot)

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