

Background Context

In 2021, NLP Logix client [Miller Electric](#) sought to develop a method to better understand how to leverage their extensive data to identify safety related opportunities and drive awareness of the underlying factors that could lead to safety issues. In support of this initiative, Miller Electric and NLP Logix engaged in several discovery workshops as part of



NLP Logix's [10Q Assessment](#) methodology where questions were posed with a focus on understanding underlying trends in reported injuries.

Safety Culture has always been a priority at Miller Electric with this analysis pushing it to the next level. "The first goal of this work was to get the buy-in from the men and women that work in the field," Miller Electric, Vice President of Business Analytics Kerri Stewart said.

"We did this by validating what they knew intuitively. If you ask anyone who works in the field why a safety incident has occurred, they could point to a number of factors that

contributed. The first stages of work we did with NLP Logix validated their instincts. We were able to demonstrate with statistical accuracy that their instincts about the factors that caused safety incidents were valid. This first step was critical to adoption of any model that came from the analysis."

Gnarly Problem

One of the biggest challenges faced in this project was to consolidate the disparate data sources, which included issues resulting from hand-written values, missing values, differing data formats, and other data complexities. To consolidate the vast amount of data in a short time frame, NLP Logix used natural language processing to ensure all data was properly matched. "NLP Logix not only provided a solution to a known problem (disparate data sets), but once aggregated, the real benefit was the ability to perform ongoing analysis of the data that had never been accessible before allowing us to make decisions based on real/accurate analytics," states Miller Electric, David Stallings Chief Technology Officer.

Key challenges Miller Electric approached NLP Logix with:

- Knowing where and how to access the information
- Information in silos of multiple systems
- Consolidation of data is somewhat manual and arduous
- Timeliness of the information (reactive vs. proactive)
- Visibility of relevant insights

Strategic Approach

Having identified Miller Electric's key needs and interests, NLP Logix performed an analysis of data gathered from a variety of sources throughout Miller Electric. This included data regarding their employees, projects, training, risks, accidents, and injuries.

To identify whether an AI model could successfully be used to predict and mitigate safety issues before they happen, NLP Logix built a simple model that identifies the probability that a jobsite will have at least one injury in a given month. This analysis identified the factors that significantly influence the likelihood of an injury occurring on a job site.

Operational Success

Once the 10Q analysis was conducted the findings were discussed in sessions across various teams at Miller Electric with a simple goal in mind, to construct a visual that represents a shared understanding of the accountability that each role has in reducing the frequency and severity of injuries. Mike Oliver, Miller Electric, VP of Human Resources said, "We had retained a wealth of information and had a vision of how we could leverage this data for predictive analytics that could positively affect project safety. NLP Logix not only exceeded our expectations, they created an environment where we discovered areas we hadn't considered and they walked with us as we explored additional possibilities, resulting in a solution that is unprecedented in our industry."



General Observations from the Miller Safety Team:

- Accountability is spread across the organization
- Safety goals are in alignment across key roles
- There are ample amounts of data gathered across systems
- High level of expertise amongst the team

The end result of these sessions was a white paper that visualizes Miller Electric's common understanding of how each partner contributes to the success of this initiative and serves as a starting point for improvements to the process. The 10Q process also provided Miller Electric with a roadmap of opportunities to further optimize and visualize their safety KPI's, including a follow up solution for building several Safety Analytics dashboards within Salesforce's Tableau CRM. "Our company's strategy includes embracing innovation and developing anticipatory solutions. NLP Logix was paramount in developing cutting-edge solutions that allow us to uphold our commitment of excellence to our trade professionals, who then deliver the same level of quality and excellence to our clients," states William Watson, Sr. Director of Safety at Miller Electric.