

PROBLEM

Safety is one of the most important goals for any industry. Organizations that can't anticipate and mitigate future incidents will encounter lost time injuries

SOLUTION

Natural language processing can identify new risks, enabling safety supervisors to apply corrective action before an accident occurs

RESULTS

Organizations are able to identify their top hazardous activities, locations, in-compliance activities, and deviations from Health, Safety, and Environment (HSE) standards, enabling the organization to minimize the probability of an incident and lost time injury

THE PROBLEM

Effective HSE management programs are not only critical for the health and well-being of employees, but also to ensure productivity and overall performance. However, with every new project, site, and piece of equipment comes a wide variety of safety risks, leading to an increased demand for safety supervisors on industrial platforms.

The HSE function of the organization has to manage increasing operational activities that require additional resources from the HSE group to train employees, audit work sites, investigate incidents, and put in place corrective and mitigation actions. Another challenge is extracting actionable insights from the influx of data from historical incident reports. These records are required to be collected and analyzed for regulatory purposes, and are often collected using form-based data entry. Typically, safety supervisors manually analyze these records to identify risks, and then create new regulations, best practices guidelines, and safety training.

This process is extremely time-consuming and often leads to incomplete results where only known risks are identified. Arguably, the biggest risks are those that operators and safety supervisors don't yet know about. However, pull-down menus, check boxes, and other form fills only reveal previously identified risks; new risks are not seen until a significant event or accident occurs.

Operators and safety supervisors must take a more proactive approach to HSE management. More specifically, they need a solution that can:

- *Extract actionable insights from unstructured data found in incident reports, observation cards, etc.*
- *Reduce incident rates of previously identified hazards*
- *Provide assurance that critical risks are managed effectively*
- *Anticipate and mitigate future incidents before they happen*

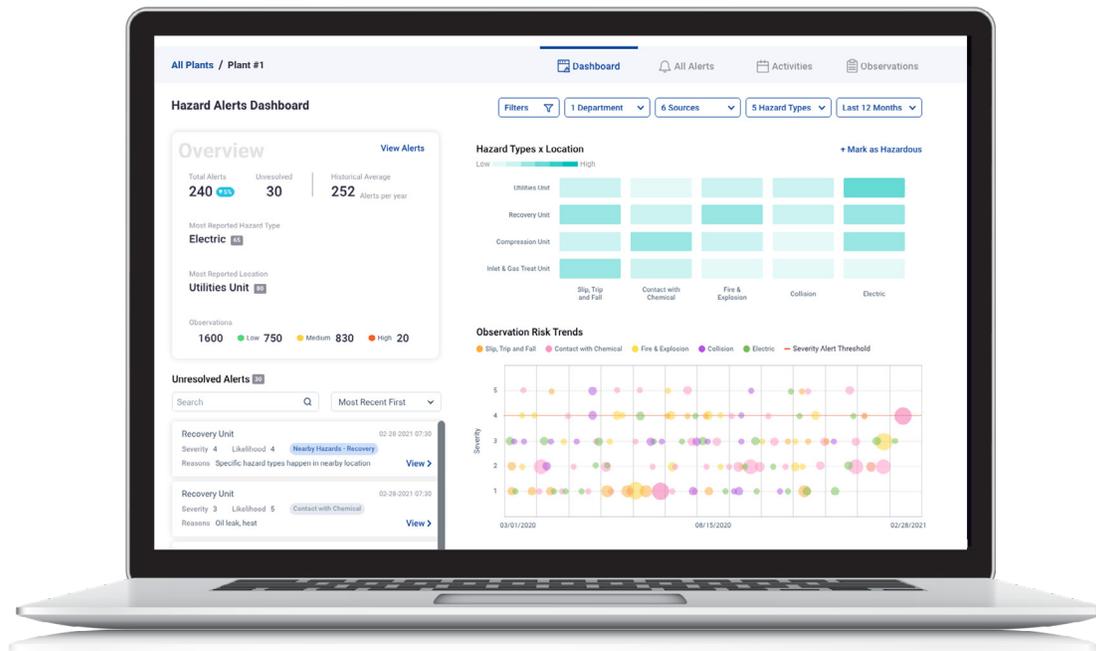
Natural language processing, a branch of artificial intelligence, can deliver significant value in improving HSE management.

THE SOLUTION

In industrial environments spanning oil and gas, manufacturing, renewable energy, and others, leveraging artificial intelligence enables operators and subject matter experts to operationalize organizational information and tribal knowledge, extract valuable insights from large volumes of data, and focus on making high-quality decisions at speed. Natural language processing, in particular, can not only help safety supervisors better understand what incidents happened in the past and why, but it can identify leading indicators of developing hazardous conditions, enabling safety supervisors to anticipate and mitigate incidents before they occur.

Modern industrial operations collect thousands of data points per day from unsafe conditions, permit violations, operational hazards, and a host of other disparate sources. These data contain leading indicators of hazards that may be difficult and time-consuming for safety supervisors to manually extract from, but not for natural language processing.

SparkCognition™ Deep NLP technology uses natural language processing to automatically identify new risks, enabling safety supervisors to apply corrective action before an accident occurs.



How Deep NLP delivers value for HSE management

To maintain a safe and risk-aware culture in the organization, each employee at an industrial plant is required to submit several hazardous identification or observation cards per month. These observation cards, or safety reports, are collected using form-based data entry in text format, and contain a wide variety of data points:

- Time and date of observation
- Specific observations: "A leak observed and hot oil spilled on the ground," or "Tools were left on the ground and are a step hazard," among many others
- Location of the observation
- Hazard type
- And more

Over time, safety supervisors will collect thousands of observation cards with the above data in unstructured format. While it would take safety supervisors a long time to analyze all this data and extract meaningful insights, Deep NLP is able to analyze this unstructured data, extract valuable insights, provide summaries of hazard and risk areas, and assign the likelihood of an event occurring in the future. In addition, Deep NLP provides a platform for creating, assigning, and closing action items related to these hazards, enabling safety supervisors to take an even more proactive role in resolving workplace safety issues.

THE RESULTS

In one case, SparkCognition worked with a utility operator that received thousands of hazard observation cards per month from

different sites. The customer asked SparkCognition to use its Deep NLP technology to automate the analysis of these observation cards and extract actionable insights to help improve workplace health and safety.

Deep NLP ingested the data from the observation cards, extracted each hazard type, assigned the likelihood of a hazardous event occurring, and then provided a summary of potential risk areas. The customer discovered that driving accidents involving animals on the road was a significant safety hazard for their employees of which they were previously unaware. The data revealed that workers were driving their work vehicles into all kinds of animals including cats, moose, horses, and geese. Deep NLP classified the animal cluster and identified a significant overlap with the driving cluster. This led to an awareness campaign to alert employees and the customer saw a reduction in the number of automobile accidents involving animals.

ABOUT SPARKCOGNITION

SparkCognition's award-winning AI solutions allow organizations to predict future outcomes, optimize processes, and prevent cyber-attacks. We partner with the world's industry leaders to analyze, optimize, and learn from data, augment human intelligence, drive profitable growth, and achieve operational excellence. Our patented AI, machine learning, and natural language technologies lead the industry in innovation and accelerate digital transformation. Our solutions allow organizations to solve critical challenges—prevent unexpected downtime, maximize asset performance, optimize prices, and ensure worker safety while avoiding zero-day cyber-attacks on essential IT and OT infrastructure. To learn more about how SparkCognition's AI solutions can unlock the power in your data, visit www.sparkcognition.com.