

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 CHALLENGE

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 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*

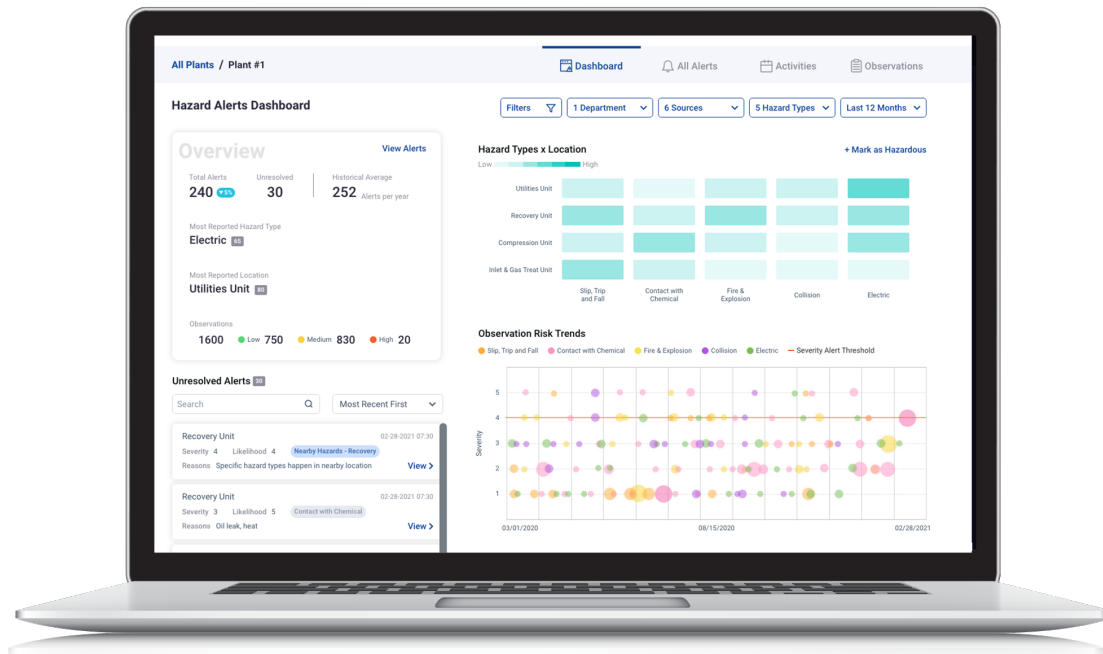
Natural Language Processing (NLP), a branch of artificial intelligence, can deliver significant value in improving HSE management.

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.

Avathon Industrial AI platform uses natural language processing to automatically identify new risks, enabling safety supervisors to apply corrective action before an accident occurs.



How Industrial AI platform 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, Industrial AI platform 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, Industrial AI platform 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, Avathon worked with a utility operator that received thousands of hazard observation cards per month from different sites. The customer asked Avathon to use its Industrial AI platform

technology to automate the analysis of these observation cards and extract actionable insights to help improve workplace health and safety.

Industrial AI platform 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. Industrial AI platform 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 AVATHON

Avathon, a leader in Industrial AI, extends the life of critical infrastructure while advancing the journey toward full autonomy. Avathon’s Industrial AI platform empowers commercial and government customers with scalable, secure, and value-driven solutions that enhance efficiency and resilience across heavy industry.