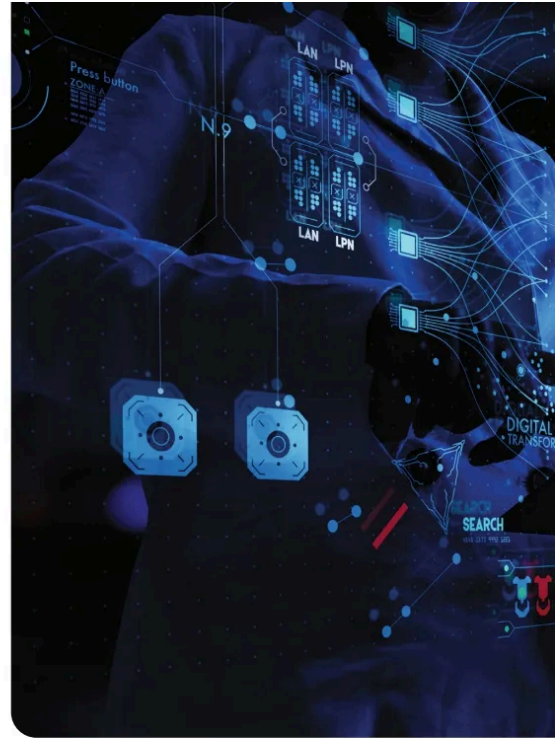


■ leadership **shinichiro nakamura**

Safeguarding factory workers with smart technology

Shinichiro Nakamura, president of Daiwa Steel Tube Industries describes how AI can help reduce accidents in the manufacturing industry.



The manufacturing industry is tragically fraught with risk - a report from Straits Research shows that around 2.78 million workers die around the world due to work-related illnesses and accidents every year.

Governments worldwide are looking to decrease fatalities to below one per 100,000 workers, and only a handful of countries have consistently achieved that goal. In an already arguably hazardous industry, it's understandable why there's a reluctance to adopt AI and ML [machine learning] processes into a fairly complicated setup.



Shinichiro Nakamura.

However, AI and ML play a transformative role in all stages of the US Institute for Occupational Safety and Health (NIOSH) hierarchy of controls to bolster health and safety for workers. Technology is providing a multitude of benefits to the manufacturing industry, particularly in transforming factory processes. These benefits can be found in operational efficiency, decision-making processes, and agility and quality.

Let's discover how AI is transforming existing processes and how you can use the widespread adoption of these solutions to improve safety among your workforce.

Dramatically reducing occupational hazards

Technology has evolved to facilitate proactive accident prevention while removing the headache of sifting through and sorting huge amounts of data needed to do so.

Integrating tools like smart equipment, sensors, computer vision, and digital twins are addressing the key challenge of collecting the large data required. Operators and manufacturers can then leverage software solutions such as ML algorithms and predictive analytics to measure patterns by automating the processing of large datasets. Through analysing these datasets, companies can take a

proactive approach to reducing factory hazards. These smart solutions and algorithms are designed to measure enormous swathes of data and, over time, identify potential risks and dangerous patterns before they occur.

Moreover, there are tech tools to monitor safety in real-time and detect inappropriate behaviour when workers are not adhering to safety protocols. Computer vision with AI-enabled cameras and software can monitor workplace areas, alerting workers to possible dangers.

In a worst-case scenario, where a worker may be compromised, speech recognition can be a game changer for emergency action by cutting down on intervention time.

Finally, digital twins are another solution that provides real-time performance insights through data collection and the detection of anomalies in the factory. Moreover, digital twins simulate scenarios of potential failures and conduct test configurations to ensure machinery and equipment operate optimally, allowing operators to future-proof their safety measures.

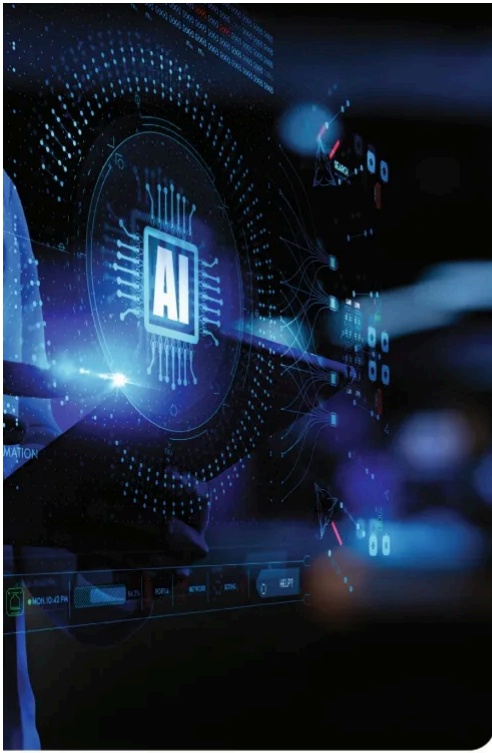
Cultivating a healthier workforce

A fatigued team is more susceptible to hazards. This risk is even more alarming in a setting where heavy equipment and machinery are handled.

In fact, contact with equipment and overexertion were counted among the top injuries in 2023. Automating repetitive processes carry great potential in addressing this industry-wide problem. A study from the European Parliament found that AI mitigates workplace risks and that reducing injury was a key benefit of integrating smart tech into the factory floor.

Using robots to automate repetitive and dangerous tasks is one solution to lowering human exposure to dangers. Smart tech possesses capabilities to monitor workers for fatigue symptoms. Computer vision analyses facial expressions to pick up on any signs of fatigue, prompting employees with alerts to rest and potential risks.

Sometimes teams need a refresher on protocols, and it's crucial to have HSE information easily accessible. Chatbot



- Leveraging virtual reality (VR) tools to make the training experience more engaging for workers, and easily accessible if they need to refresh their knowledge at any point.

Incorporating AI technology is a cornerstone of bolstering the safety and well-being of your employees. There are a plethora of solutions that are transforming the factory floor, allowing for more safe and seamless operational processes to maximize efficiency. Innovations such as real-time communication, computer vision, NLP, and other ML algorithms are ways to ensure a widespread proactive stance to reduce operational risks and better equip employees. ■

services, using natural language processing (NLP), are a great way to provide employees with instant access to this key information, especially if they have safety-related questions. Enterprise data platforms can also include built-in safety instructions which are sent in real time to workers as part of their workflow, which reinforces the most important safety protocols at the specific moments when workers most need to be cognizant of them.

AI even has the potential to leverage predictive analytics to detect burnout, one of the deadliest conditions in the workplace. Using analytics to tap into destructive burnout patterns sooner rather than later is always the best approach to staying on top of this well-being risk.

Steps for embracing AI systems

First and foremost, manufacturers need to shift from a reactive to a proactive mindset. Adaptability and agility are best fuelled by proactiveness, and, in an industry where demands are constantly changing, this mindset is key.

This attitude shift needs to take place across your organization. Embedding this proactive outlook across your company culture will drive transformational change to reap more benefits from integrating AI processes.

How can you achieve widespread adoption? Broaden awareness across your teams on the capabilities of AI to future-proof operational processes. This includes:

- Involving your workforce in strengthening existing processes by taking surveys to identify current gaps. This will help determine which solutions align most prominently with your operational needs.
- Building out a robust, cohesive training program to familiarize all teams with the ins and outs of the AI and technology tools being integrated.



DESIGNED FOR RENTAL

Skyjack's vertical mast lifts with AC electric drive offer a quiet and versatile package with zero emissions.



SJ20 E
NOW AVAILABLE

www.skyjack.com

