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SAFETY TECHNOLOGY

Safety Technology Roadmap

Begin planning for new safety technologies by determining which ones are most suitable for your current and future needs.

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A year ago, I wrote about updating your safety programs and processes to meet the challenges of Industry 4.0 (“Safety 4.0,” April 2018). I mentioned the technologies that are, in part, driving this new industrial revolution. I now would like to challenge

each organization to at least begin planning for these new technologies by formulating a projection of which ones should be adopted in what order.

Obviously, such a plan will have to be flexible since the technologies are progressing so rapidly and their prices are dropping so quickly, but such a plan can help provide a potential roadmap for navigating the changes Industry 4.0 will inevitably bring. This is not a list of specific items, but rather the types of items and their potential uses. Many of these will revolutionize current safety efforts and open new possibilities that we have not been able to achieve without them.

Consider the following categories of new technologies and prioritize them by potential contribution to your safety needs.

MICROLEARNING

Other than computer-based training (CBT), very little progress has been made from the one-room school days. But now we have microlearning: device-based modules of training utilizing the latest brain sciences and other breakthroughs, and providing follow-up training, easy access to information and tracking of the training-to-performance progression. The training can be delivered to logistically-challenged populations unlike instructor-led classroom training.

Also, it is not just for safety but can be applied to virtually any training need. If training needs updating, this may be your first priority.

WEARABLES

Devices that go with the worker can track anything from heart rates and calories burned to location and sudden motion. Falls can be detected and reacted to in real time. EMS can be called as an accident occurs. Workers can be warned if they are entering areas with new or unusual dangers. Worker behaviors related to safety can be monitored with exacting accuracy and discrete feedback mechanisms.

If your workers are at high risks for falls, consider these early on.

MOBILE COMMUNICATIONS

In a world already full of tablets and cellphones, it makes sense to utilize them for more than interpersonal communication. Training can be delivered on them; cultures can be formed around them; safety manuals which are always up-to-date can be available on them. Incident reporting can be delivered, polls and surveys can be taken, and prompts can be sent to workers to do stretch-and-flex sessions, observations, audits or take breaks.

Organizational leaders can send messages of strategy and encouragement that will be received by the entire workforce and be in their voice rather than filtered down through organizational levels (where it is often distorted). Lone workers and drivers can be reached with training and information without travel costs and lost work time. Emergencies can be addressed more quickly, and lessons learned from incidents can be communicated in a timely manner.

If communication is a challenge for your organization, consider how these technologies could help.

SENSORS

In many heavy construction businesses, the most serious injuries and majority of fatalities are caused by workers being hit or crushed by equipment. New sensors can alert heavy-equipment operators of the presence of workers in their blind spots and, in some cases, equipment can react to these alerts more quickly than the operator. Robotic equipment can detect workers in the line of fire and take corrective action.

If you don't have the budget for these devices, try acquiring them through your supply chain. Many providers can add them as standard equipment on what you purchase or lease them if they know you want or require it.

Other types of sensors can tell you when someone enters a work zone and if they are wearing the proper PPE for that area. They also can have chips built into clothing or equipment to allow you to track and locate any worker. You also can determine if everyone on a shift actually left the workplace at the end of the day. In an emergency, this can be critical.

If these types of accidents have happened in your organization, these may be the answer.

ROBOTICS AND DRONES

Confined space entries are being performed by robots rather than humans in many situations. Inspections at height and aerial surveys are being performed by drones rather than humans. These technologies are taking workers out of harm's way and allowing them to operate a piece of equipment that takes all the risks.

In many organizations, these are the types of risks with the highest potential of severity.

SMART SIGNAGE

Many cardboard and metal signs are being replaced with tablet-type devices that can be stationed in critical areas and changed or updated online. This allows more control and quicker changes. Some organizations are automating control of either foot or vehicle traffic in construction zones or hazardous areas of manufacturing plants.

If you have had incidents related to incorrect or unreadable signage, consider these.

EXOSKELETONS

There currently are three distinct types of exoskeletons on the market that range from avoiding sprains and strains, to preventing cumulative injuries, to turning a worker into a human forklift. This is a giant step above the wearable technologies mentioned first. These suits provide increased capabilities rather than just information or monitoring.

If workers are doing awkward, repetitive, or exceptionally heavy work, these might be your solution.

The major issues with adopting these technologies will be budget and resistance. The budget problem will largely take care of itself if it has not already done so. Prices on these new technologies are coming down quickly; this is what led to Industry 4.0 in the first place.

The resistance issue will take more time but can be greatly facilitated by adopting a technology roadmap (in sequence rather than all at once) and preparing workers mentally for these inevitable changes.

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