EHSToday

2023 Guide to Safety Technology

WHILE THERE ARE MANY NEW TECHNOLOGIES THAT CAN MAKE THE WORKPLACE SAFER, EHS PROFESSIONALS WILL NEED TO MAKE A SOLID BUSINESS CASE FOR THEM.

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A Zero-Based Approach to Safety

In the current working environment, safety is no longer considered to be a golden goal to shoot for, even if it cannot be achieved all the time. Instead, public safety advocates have recruited regulators and policymakers to the new requirement that the goal should be an everyday fact. An absolute safety standard is rapidly becoming the norm, and if not already here yet, it is headed toward all employers like a speeding freight train.

This philosophy originated in Sweden in the 1990s and at first was focused almost exclusively on highway safety. For instance, the Road to Zero Coalition was organized in the United States by the National Safety Council (NSC) with the express aim of eliminating motor vehicle fatalities and serious injuries, to eventually being accomplished through a mixture of high safety enforcement and improved roadway designs. (In Canada it is called Vision Zero.)

The Road to Zero goal is the elimination of all traffic fatalities by 2050. The aim is to zero out fatalities by controlling traffic speeds and adopting various traffic calming design strategies for road and highway design.

The zero-based concept has since expanded to other activities and is being applied to safety improvements that go beyond eliminating fatalities and the most serious injuries. Earlier this year, following the fiery derailment of a Norfolk Southern train carrying hazardous materials in Ohio, Jennifer Homendy, chairman of the National Transportation Safety Board (NTSB), unequivocally embraced the zero-accident goal when it comes to rail safety.

"I can tell you this much: This was 100% preventable," she declared. "We call things accidents. There is no accident. Every single event that we investigate is preventable."

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Expect Zero-Based Approach to Widen

Much of other corporate management in the U.S. that has not officially signed-on to the zero-based safety approach can be counted on to do so eventually. One could argue that the smarter ones will adopt more aggressive safety agendas, rather than wait for federal and state agencies to come down hard on them, and face a raft of expensive lawsuits.

From now on, you can expect that constant improvement will not merely function as an ideal but will be assumed to be just another tool for getting to the point where any accidents and injuries are assumed to be unacceptable. It may not be here now, but do you want to bet against this happening sooner rather than later? This is something upper management needs to realize as well.

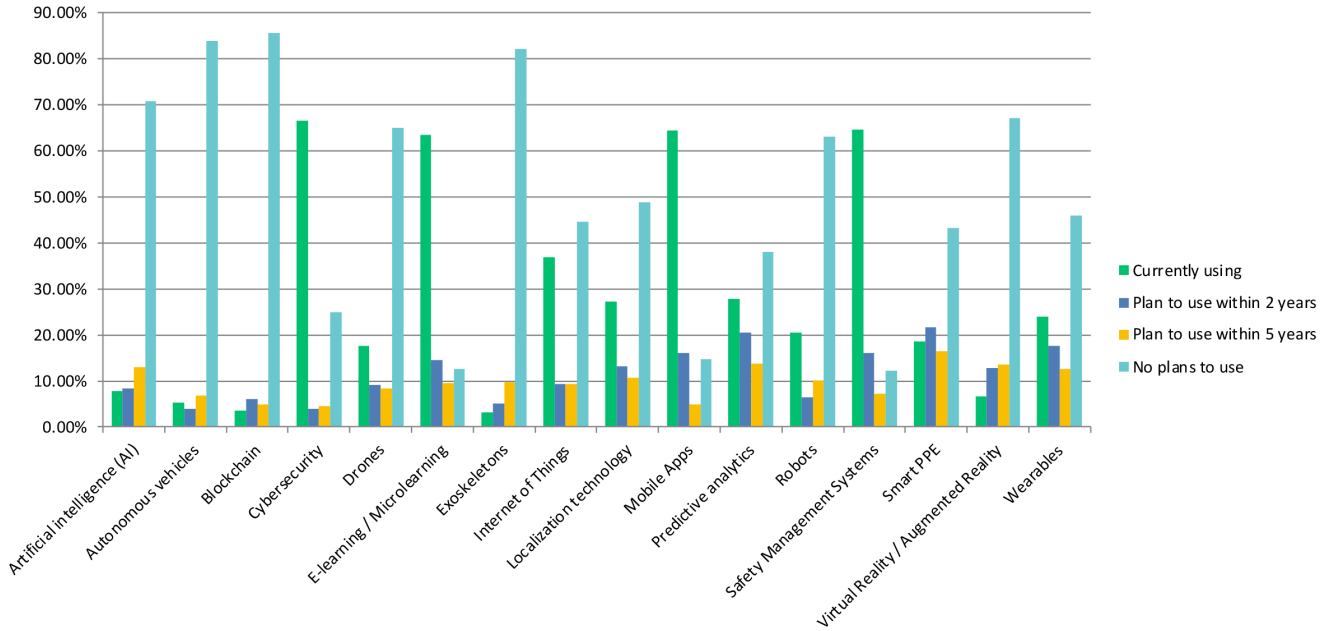
The ongoing progress of technology in every profession and line of work creates both challenges and opportunities for achieving the optimum level of workplace safety that's rapidly becoming the standard. The pressure is growing on corporate leadership, middle managers and front-line employees to up their game when it comes to creating and maintaining worksite and public safety initiatives.

For safety professionals who are responsible for making purchasing decisions regarding safety equipment and technology, the need to embrace solutions to make a real difference has never been greater. Today's investment in safety equipment must lead to measurable improvements or be supported by evidence that it really can work to maintain a safe workplace environment.

When it comes to making acquisition decisions regarding the continuous flow of technology innovation, you need to make sure you are on the "leading edge, not the bleeding edge" (to use an old adage). The need to choose cost-effective solutions that give top management the best choices means those investments must lead to measurable improvements in safety in order to support reaching the ultimate goal.

As a result, safety professionals must become thoroughly versed in the products and services they are recommending to management. In other words, they need to be knowledgeable enough about them to be equally expert at selling these products to C-suite executives as they are at evaluating and buying them.

Figure 1. Which of the following technologies are you using, or plan to use, as part of your EHS responsibilities?



Safety professionals must become thoroughly versed in the products and services they are recommending to management.

The data gathered by *EHS Today*'s recent survey regarding the safety technology purchasing decisions made by our readers shows that they are well aware of many of these challenges and are making their choices accordingly.

We collected this information from a survey conducted late last year of 485 employees responsible for safety management in their organizations. The respondents' job titles ranged from CEO to front-line supervisors and floor managers. Their operations are involved in economic sectors covering a wide variety of different kinds of industries, as well as some public sector agencies and nonprofits, and from small companies to some of the largest employers in the United States.

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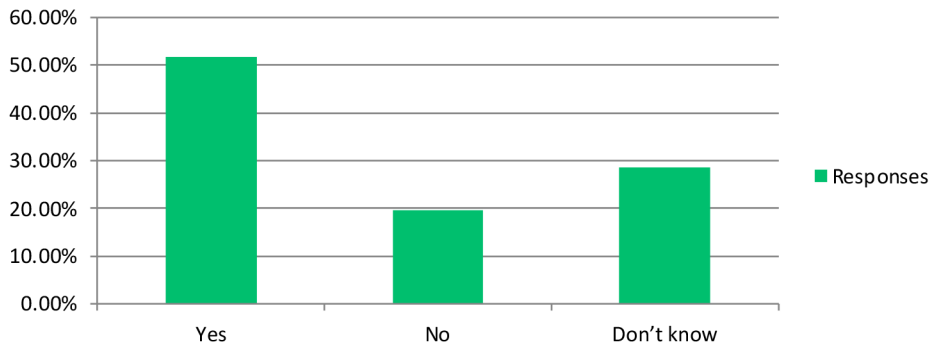
Figure 2. Do you use or are you planning to use software to track, manage, analyze and report data about your facilty's safety performance?



Supporting Safety Priorities with Technology

Many organizations have committed to investing in all kinds of safety technologies, ranging from safety glasses to sophisticated computer systems. But the responses to the survey also show that too many senior managers have been unwilling to invest in what their safety professionals believe is badly needed.

Technology solutions already being purchased and which are targets for expanded use in the immediate future address an amazingly broad range of priorities. At the top of the list—although not necessarily related to preventing accidents and injuries—is cybersecurity, with 67% currently investing in solutions to address the problem, and another 4% saying they plan to adopt it within the next two years (**Figure 1**).

Another 65% report that they have acquired high-tech safety management systems, while 16% are looking to invest in this area within the next two years. In addition, 64% are currently invested in e-learning and micro-learning, with 4% planning to add these types of training solutions within two years, and another 64% are currently using mobile aps, with another 16% planning to do so within two years.

The Internet of Things (IoT) has seen investment by 37% of respondents, with another 19% saying they plan to do so within two years. Also, 28% are making use of predictive analytics, 27% are involved in localization technology, and 20% are planning to invest in both. In addition, 24% are currently spending on wearables, with 18% planning to buy them within two years. Already invested in smart personal protective equipment (PPE) are 19%, with another 22% expecting to do so within two years.

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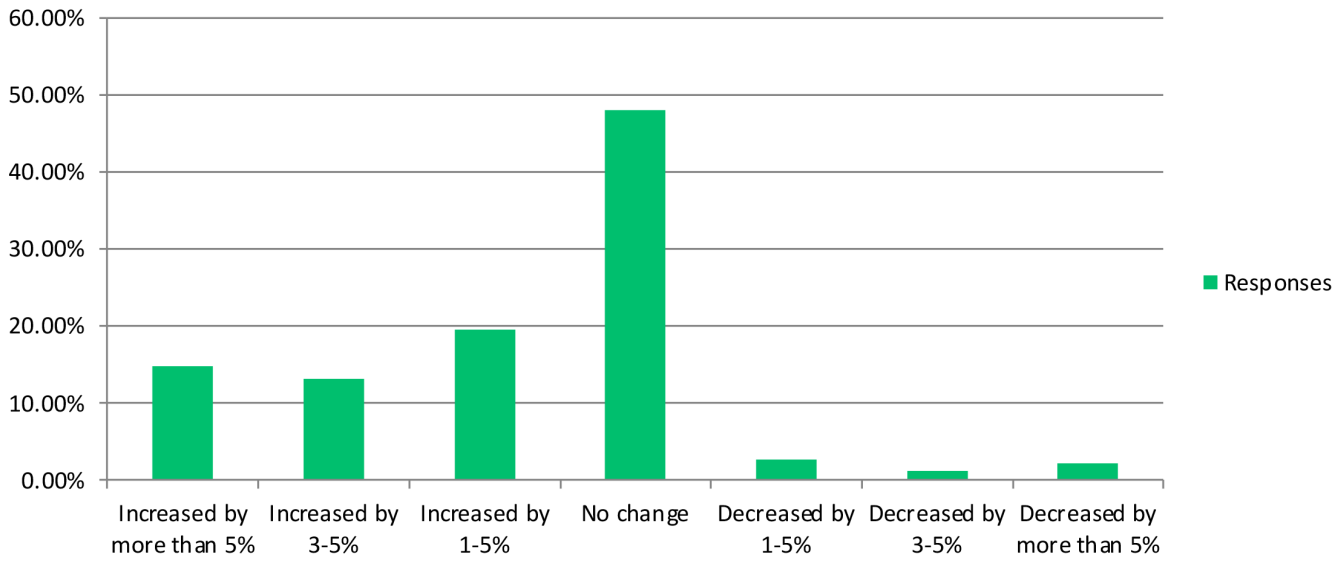
Figure 3. How has your company's spending on safety technology changed since the pandemic began?



These responses indicate that safety professionals are embracing technology to improve the functions and broaden the capabilities of floor-level equipment in daily use, like PPEs and wearables, as well as to expand their ability to supervise safety processes and results at a higher level of management by using augmented safety management systems and predictive analytics. This shows a healthy awareness of the importance of all kinds of technology solutions, large and small, to create and maintain a safe workplace.

A sample of respondents' comments bring this home:

"Software evaluates each case looking for similarities that occur more than once and implement procedures to remove the cause of the accident."

"We use the data from incident reports to look for trends and then focus on those areas for improvement through better training, PPE, or increased maintenance schedules to analyze and understand how to avoid the accident."

"Analyze data to extract information that trends leading safety indicators throughout all operations of the business to reduce accidents/incidents prior to them occurring."

"We emphasize near miss and stop work authority in the field and require it to be reported/create a notification to the Safety Team, being proactive instead of reactive."

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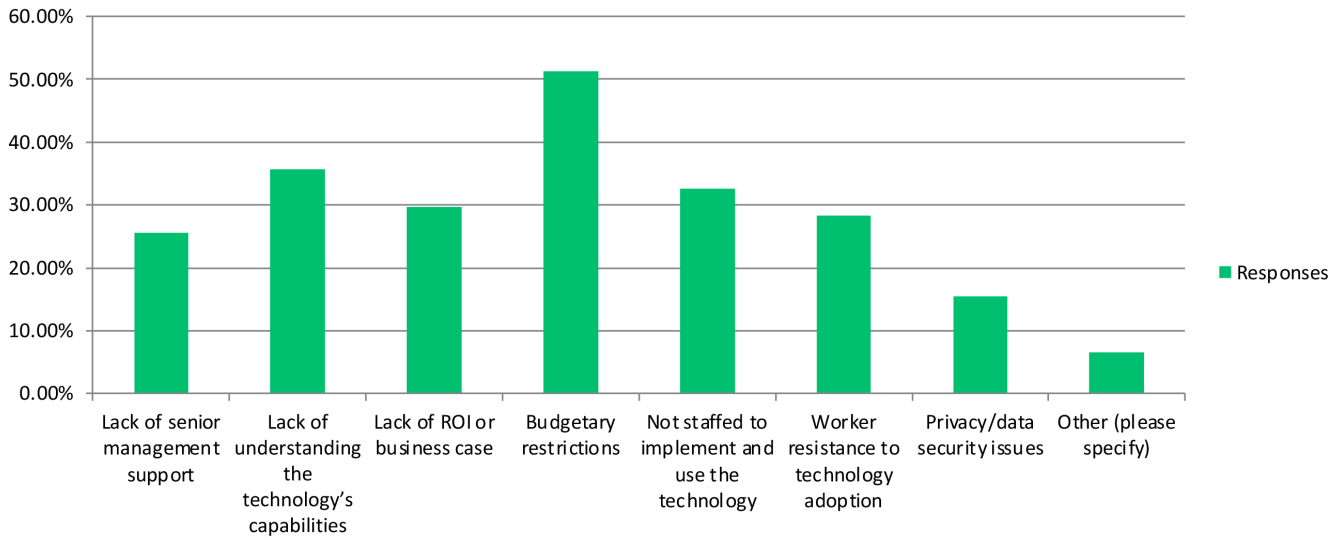
Figure 4. What are the biggest barriers to adoption of safety technology at your company? (Select all that apply)



Safety Professionals Bring the Future Into the Present

Safety professionals are proving that they can keep their eyes on developments on the horizon as well as focus on current practices and behavior where they work now. For example, while 18% said that they have already purchased and deployed drones in their operations, another 9% revealed that they plan to do so within the next two years.

About 7% have embraced virtual reality/augmented reality, while about 12% plan to do so within two years. Other purchasing priorities blend safety concerns with other management priorities, such as supporting environmental and productivity goals, including the 5% who have acquired autonomous vehicles and the 4% who plan to, along with the 20% who have bought robots and 6% who plan to. While only 3% say they have invested in exoskeleton technology, more than 5% said they will do so within two years.

Yoked to powerful computer systems, the data derived from these devices aids in making choices of the future capabilities of all sorts of safety equipment, management strategies and future decisions about other equipment purchasing decisions. Predictive systems are better to have than a crystal ball, and when used properly there is little speculation involved.

As we have seen, analyzing mistakes, failures and accidents is not the only use that computers can be put to. One respondent stressed that his company is deploying software and analytics to make sure that past successes can be duplicated and perfected. Getting more specific, 52% of those surveyed said they currently use or are planning to use software to track, manage, analyze and report data about their facility's safety performance (**Figure 2**). On the other hand, 20% said they won't be doing that and 29% said they don't know whether they will or won't.

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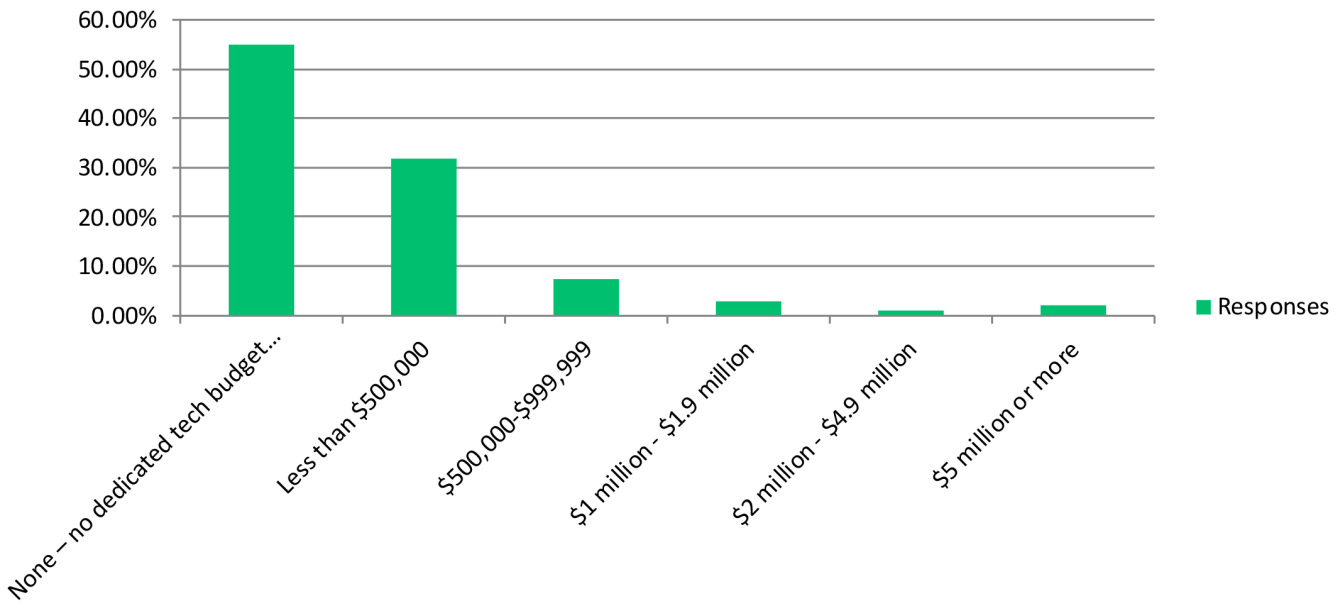
Figure 5. What is your company's budget for technology in the EHS department?



Budgetary restrictions are the biggest barriers to adoption of safety technology.

Other individual responses include leveraging analytics from the software to predict issues and areas to improve, look for leading indicators to get ahead of problems, use of forward-leaning metrics to accumulate and customize metadata, target resources and identify unknown issues, track and identify weaknesses in training, perform root cause analysis and predictive behavior analysis, and last but definitely not least, to build a case to take to upper management for getting more resources.

When it comes to a literal buy-in by senior management to support safety technology, the COVID-19 pandemic appears to have had a limited positive effect (**Figure 3**). Survey respondents reported that 15% saw an increase in spending of more than 5%, with 13% reporting that their budget boost was in the 3-5% range and 20% saying they saw a 1-5% bump.

However, an unfortunate 48% of respondents said they saw no change in their budgets at all, and about 5% experienced budget reductions of between 1-5%. As a result, it is hardly surprising that 51% of the respondents said budgetary restrictions are the biggest barriers to adoption of safety technology at their organizations (**Figure 4**).

In fact, 55% of respondents said they have no dedicated tech budget for EHS, a rather startling statistic (**Figure 5**). Another 32% said their safety tech budget was less than $500,000, and 7% said their budget was in the $500,000-$999,999 range. Only 6% had safety tech budgets of over $1 million per year.

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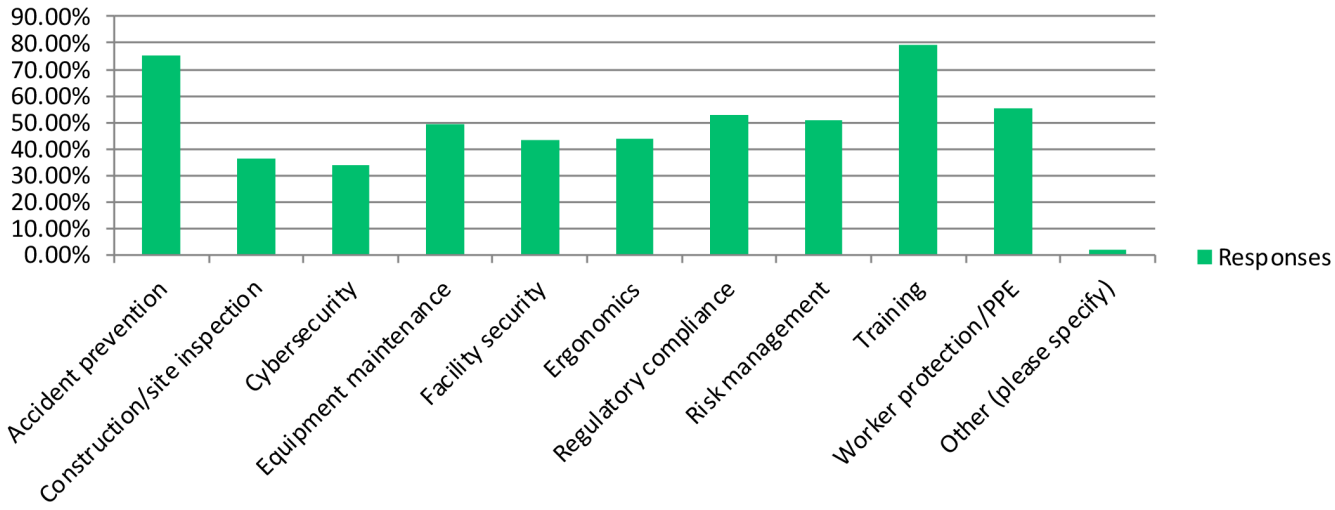
Figure 6. In what areas are your using, or planning to use, technology to improve safety in your workplace? (Select all that apply.)



Another 36% cited lack of understanding of the technology's capabilities as the biggest barrier, and 33% said they were not staffed to implement and use the technology. About 30% cited the lack of ROI or business case to be made, while others (26%) blamed the lack of senior management support. (The Occupational Safety and Health Administration has some ideas on how to overcome these barriers that may prove to be helpful.) Other respondents (28%) cited worker resistance to technology adoption.

The most popular use for safety technology is for training, as 79% of respondents said they are using or plan to use tech for that purpose (**Figure 6**). The next most frequent responses are for accident prevention (75%), personal protection equipment (55%), regulatory compliance (53%), and risk management (51%).

When respondents were asked what level of value they are now seeing or expect to see from their safety technology investment, 39% of them said this was hard to quantify or it was too soon to say (**Figure 7**). Only 17% said they expect to achieve significant value, while 33% expect the gains to be modest and another 11% predicted they would be marginal.

It looks like technology vendors need to do more work to educate their customers and prospects, and safety management professionals have a lot of work to do to educate their upper management.

About the Survey

Between November 14 and November 29, 2022, EHS Today received 485 survey responses in a wide range of industries, including 29% from light and heavy manufacturing, 15% from construction, 8% from gov-ernment, and other sectors such as chemicals, oil & gas, retail, utilities, and warehousing/distribution.

Nearly two-thirds (64%) of respondents identified themselves as safety professionals, with 92% saying they have responsibility for safety in their organizations, 67% having responsibility for occupational health, and 64% responsible for risk management (multiple answers were allowed).

Figure 7. What Level of value are you now seeing or do you expect to see from your safety technology investments?