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A Small Business Guide to Safety Technology:

Practical Strategies for Beginners,
Growing Teams and First-Time Adopters

 **nsc**
National Safety Council

Introduction

Small business owners wear many hats—managing operations, finances, and personnel, often with limited resources. Amid these challenges, even a single workplace injury can have lasting consequences. The financial toll can be devastating, including rising insurance premiums, medical expenses, legal fees, regulatory fines, lost time, and operational disruptions (see Injury Facts, 2025). Beyond the numbers, there is also a personal cost when a team member is in pain—work is put on hold, and a close-knit team is left reeling after someone they trust and rely on gets hurt.

Smaller organizations may feel that major safety interventions, especially those involving technology, are out of reach. However, small, strategic investments in the right tools can help reduce risk without straining your budget. Many of these solutions can also improve productivity, boost employee morale, and streamline operations, offering value beyond safety alone.

This guide walks you through the [Safety Innovation Journey](#), a five-step process developed by the National Safety Council's Work to Zero program to help organizations adopt safety technology. At each stage, you'll find practical and scalable recommendations tailored to small and medium-sized businesses (organizations with fewer than 500 employees), from assessing risk and identifying solutions to building the business case and piloting new tools.

Figure 1. The [Safety Innovation Journey](#) is a five-step roadmap designed to help organizations identify and successfully adopt safety technologies in the workplace.



Introduction to Safety Technology

Work to Zero (2020) identified over one hundred technologies with the potential to reduce the top risks contributing to serious incidents and fatalities (SIFs) in the workplace. For first-time adopters, the sheer number of options can feel overwhelming. To simplify this process, these technologies have been grouped into six categories, based on their functions (what they do), types (what they are), and contexts (where they're used) (see Table 1). They are also broadly organized by complexity and cost, from simpler, more affordable tools to more advanced solutions requiring additional setup, training, or technical support. While each tool is broadly categorized, many can be combined or layered to support a more comprehensive safety strategy as your organization evolves.

Of course, successful adoption involves more than just choosing the right tool. A 2024 Work to Zero survey found that small and medium-sized organizations face several common barriers, ranging from cost concerns and implementation uncertainty to worker acceptance (see Figure 2). The following steps are designed to help you anticipate these challenges and navigate them at each stage of the process.

Figure 2. Top Barriers to Safety Technology Adoption (n=157) (Work to Zero, 2024)

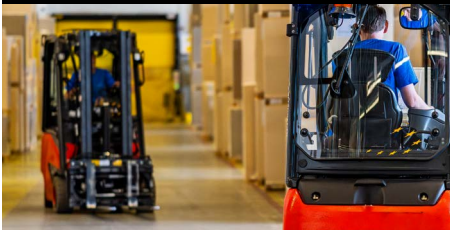


Note: Respondents could select more than one option; therefore, percentages may exceed 100%.



For those new to safety technology, a good first step is investing in an Environmental Health & Safety (EHS) management system. A well-designed platform can streamline tasks, capture meaningful safety data, and free up time for one-on-one engagement with workers, which is key to building a strong safety culture. It also lays the groundwork for using tools like wearables, sensors, and analytics. If training isn't built into your system, also consider a Learning Management System (LMS) to deliver and track your safety training.

Table 1. Safety Technology Overview

Technology Type	Technology Description	Examples
Digital Management Systems 	Software platforms or mobile applications that streamline the tracking, reporting, and management of EHS activities, such as incident tracking, inspections, training and compliance.	• EHS management software • Contractor management software • Audit and compliance applications • Learning Management Systems
Industrial Wearables 	Devices worn on the body or built into personal protective equipment that monitor worker health, location, and risk exposure, enabling real-time alerts if hazards or incidents are detected.	• Vital signs monitoring wearables • Fatigue monitoring wearables • Wearable panic/distress buttons • Smart Personal Protective Equipment (PPE)
Sensor-Based Monitoring 	Fixed or mobile sensor systems that detect hazards and unsafe conditions, with real-time alerts to prevent collisions, exposure to hazards, or unauthorized access to high-risk areas.	• Proximity sensors • Digital gas monitors • Fleet telematics • Work zone intrusion detection
Artificial Intelligence (AI) and Advanced Analytics 	Solutions that use data-driven algorithms to identify patterns, predict safety risks, and support proactive decision-making before incidents occur.	• Computer vision • Natural language processing (NLP) • AI-powered risk modeling • Chatbots/AI assistants
Immersive Training 	Digital tools that deliver immersive, interactive, and repeatable training experiences to strengthen worker skills, increase engagement, and enhance worksite awareness.	• Virtual reality (VR) • Augmented reality (AR) • Digital micro-learning • Digital twins
Robotics and Automation 	Automated, semi-automated, or operator-controlled tools that reduce human exposure to repetitive, strenuous, or high-risk tasks, such as work at height or confined space entry.	• Drones • Autonomous mobile robots (AMRs) • Exoskeletons • Robotic arms

Step 1: Assess Your Risk

Conducting a Risk Assessment

The first step in the Safety Innovation Journey is understanding and prioritizing the risks your workers face. A clear, structured risk assessment helps you uncover hazards, prioritize your efforts, guide safety investments, and measure improvements over time. Without it, safety initiatives and technology upgrades can become unfocused and ineffective.

Start by identifying the jobs, tasks, or environments where injuries are most likely to occur, or where the consequences could be severe. This should include a physical walk-through of your worksite to spot visible hazards such as unguarded machinery, moving equipment, exposure to hazardous materials, or fall risks. This process should also include a review of any existing safety data (e.g., injury logs, near misses, or OSHA logs) to uncover trends, recurring hazards, or overlooked risks. For each hazard, ask:

- What could happen?
- How likely is it to happen?
- What are the consequences if it happens?

Once hazards are identified, prioritize them by likelihood and severity. Focus first on those with the potential to cause serious injuries or fatalities, even if they are less likely to happen. Tools like a risk matrix (see Figure 3) can help assign risk levels and determine the urgency of mitigation efforts. This focused approach ensures that your time and resources target the highest-impact areas.

For example, during a site walk-through, a construction supervisor identifies an unguarded edge on a second-story platform. The likelihood of a fall is medium to high, as workers frequently use the platform while carrying materials. The potential outcome—severe injury or death—makes it a top-priority hazard that must be addressed immediately, before work resumes.

Figure 3. A risk assessment matrix is a practical tool that helps employers evaluate and prioritize hazards by rating the likelihood of an incident occurring, and the severity of its potential consequences (see NSC, 2025).

Risk = Consequence x Likelihood

Risk is a measure of the consequence and likelihood of adverse effects.

Risk Level	Action and Time Scale
1-3 (Low)	No further preventative action is necessary, but consideration should be given to more cost-effective solutions or improvements that impose no additional cost burden.
4-5 (Medium)	Efforts should be made to reduce the risk, but the cost of prevention should be carefully measured.
10-15 (High)	Work should not be started until the risk has been reduced.
16-20 (Very High)	Work should not be started or continued until the risk level has been reduced.
25 (Extreme)	Immediate action is required. Process and/or activity is suspended until the risk is reduced.

	Consequence				
	1	2	3	4	5
Likelihood	1	2	3	4	5
	2	4	6	8	10
	3	6	9	12	15
	4	8	12	16	20
	5	10	15	20	25

1	Minor	1	Improbable
2	Medical treatment	2	Low
3	Lost time, full recovery	3	Medium
4	Lost time, some permanent impairment	4	High
5	Major premanent impairment or death	5	Almost certain



The National Safety Council (NSC) [SIF Prevention Model](#) provides step-by-step guidance to assist employers in preventing serious incidents and fatalities in the workplace, including a general site assessment to identify the hazards within their organizations. For more dedicated support, OSHA offers free on-site [consulting services](#) for small businesses in all fifty states.



Worker Engagement

A key advantage as a small business owner is the ability to engage directly with your team. Workers are often the best sources of knowledge for understanding workplace risks, as their firsthand experiences allow them to identify hazards, inefficiencies, and emerging risks that may not be obvious during formal inspections or walk-throughs. Involving workers early in the risk assessment process allows you to capture these perspectives, and builds trust by reinforcing that safety is a shared responsibility.

Employee engagement doesn't have to mean formal meetings or structured safety huddles—it can also happen during everyday conversations. Use these moments to ask about the challenges your workers are facing, the types of hazards they encounter, procedures that may not be working, or tools that could make their jobs better. Toolbox talks, quick check-ins, or anonymous surveys can all encourage open feedback, especially for concerns that might be hard to voice out loud. Most importantly, engagement should be ongoing. Keeping the conversation active helps you stay ahead of emerging risks as work conditions, projects, or technologies evolve.

See [Appendix A](#) for example questions to support employee safety discussions.

Step 2: Identifying Safety Technologies

First and foremost, before investing in new tools, it's important to take an audit of the systems you already have in place, and determine whether they can be tailored to support safety efforts. For example, workforce communication platforms can be used to share real-time hazard alerts, distribute safety policies or standard operating procedures (SOPs), or recognize safe behaviors through shout-outs or digital badges. Company-issued phones can also host a variety of free or inexpensive applications for tasks like hazard or incident reporting, location monitoring, and on-demand training. By repurposing familiar tools, you can help reduce costs, avoid disruptions, and drive compliance by leveraging systems that your workers already use and trust.

After evaluating your current systems, if you determine that new technology is needed to fill gaps or strengthen your approach, the next step is to identify which solutions are the right fit. With so many solutions available—and new ones always emerging—it can be overwhelming to know where to start. The good news is that there's no need to begin with the most advanced or comprehensive solutions; starting small and scaling thoughtfully can be just as effective. To make confident decisions, it helps to have a clear set of criteria for evaluating what's right for your organization. Consider the following:

- **Relevance to your operation:** Choose solutions that directly address the specific risks and challenges in your workplace. A tool may be highly rated or address a wide range of hazards, but it won't deliver meaningful results if it doesn't align with your unique operations. Prioritize vendors with experience in your industry or with small businesses to ensure a better fit.
- **Effectiveness at mitigating risks:** Evaluate how well the chosen technology solves the problem you're trying to address. Ask your prospective vendor for data, case studies, or testimonials that demonstrate its effectiveness in similar work environments. Many vendors will even connect you with current users so you can understand how the solution performs in practice.
- **Ease of use for workers:** If a solution is overly complex, requires constant troubleshooting, or disrupts normal workflows, it can quickly become a barrier rather than a solution. Look for intuitive systems that require minimal training and integrate smoothly into daily tasks.
- **Ease of implementation:** For organizations with limited IT support or bandwidth, ease of implementation is critical. Look for technologies that offer clear onboarding, user-friendly interfaces, on-site training, and strong customer support. Cloud-based platforms, plug-and-play hardware, or systems that integrate with tools you already use can help reduce disruption and downtime. Asking your vendor the right questions up front can save time, avoid setbacks, and help to ensure that the technology works for your team from day one. For a full list of sample questions, see [Appendix B](#).
- **Lifetime Costs:** Consider the total cost of ownership over time, including subscription fees, maintenance, upgrades, training, and any required hardware. Understanding the full financial picture helps to ensure that the investment remains sustainable and delivers long-term value.
- **Scalability:** Select technology that can grow with your business. A scalable solution should adapt to new hazards, expanding teams, or additional locations without requiring costly overhauls or major reinvestments.
- **Data Privacy:** Workers may hesitate to use tools they feel could be monitoring them unfairly. Choose vendors with strong data protection practices, and be transparent with employees about what data is being collected, how it's stored, who has access to it, and how it will be used. Sensitive data can often be aggregated, meaning it is compiled into a collective dataset that prevents individual workers from being identified, while still displaying site or team-specific metrics for targeted interventions. It may also be helpful for workers themselves to have access to their own data for personal development or transparency reasons.



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The Work to Zero program at the National Safety Council has a free [Safety Technology Locator Tool](#) to help you explore technology solutions. Simply select the hazardous situations most relevant to your operations, and the tool will highlight technologies with the potential to reduce serious incidents and fatalities (SIFs) in those areas.

Mobile Applications for Lone Worker Safety



Cordia, a medium-sized U.S. energy services provider, identified safety concerns for its lone workers responsible for off-hours maintenance and monitoring. The company initially relied on stand-alone wearable devices with features like fall detection and panic buttons, but workers found them cumbersome, reporting false alarms, difficulty keeping the devices secure, and the inconvenience of having to carry extra equipment. To address these challenges, Cordia shifted to a mobile app integrated into company-issued iPhones, offering real-time safety features such as no-motion alerts, customizable check-ins, and 24/7 emergency monitoring, all without the need for additional hardware.

The decision to switch wasn't just about adopting new technology; it was about selecting a solution that aligned with both worker needs and existing infrastructure. Cordia involved frontline employees from the start, using their input to adjust check-in times and alerts, based on actual work conditions. They also partnered with IT to make sure the app worked smoothly on company devices, with minimal disruption to daily tasks. By integrating safety into the tools their teams were already using, Cordia boosted both usability and reliability while maintaining its safety record of zero lone worker incidents.

Step 3: Determine Your Readiness

Adopting new technology impacts every part of the organization, from the initial investment decision to daily use by frontline workers. If the end users don't understand or value why a new tool, process, or system is being introduced, adoption often stalls. To help ease this transition, it is important to:

- **Align** the technology with a business need, and explain why it matters, especially for the end users
- **Assess** how it will impact different roles across the business
- **Identify** what support is needed, such as IT infrastructure, staff members, and other additional resources
- **Clarify** expectations, prepare for mistakes, and try to anticipate unexpected outcomes

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The Work to Zero program at the National Safety Council developed a free [Digital Readiness Assessment](#) to help you evaluate your organization's readiness to innovate and identify key steps to advance to the next phase.

Create a Culture of Innovation

A common barrier to adopting workplace technology is employee distrust or a lack of compliance. Workers may worry that tools, such as wearables or monitoring systems, will be used to track performance rather than improve safety. Others may resist changes to familiar routines or feel overwhelmed by new systems. Without clear communication about the purpose and benefits, new tools can seem intrusive or unnecessary, resulting in low engagement and poor adoption. To ease these concerns, consider a few strategies:

- **Engage early and often:** Workers are more likely to embrace new technologies when they're involved from the start. Before any decisions are made, talk with employees about the hazards they face, the tools they currently use, and how the solution would (or would not) fit into their daily routines. These don't need to be formal sessions—brief check-ins or field discussions are often sufficient. Make an effort to address concerns when and where possible; if strong pushback remains, consider whether another solution may be a better fit.
- **Make transparency a key concern:** When introducing a new technology, clear and transparent communication is critical to building trust. Employees should understand why the tool was chosen, what it does, what data it collects, who can access that data, and how it will be used. Be honest about its limitations, expected outcomes, and any changes to daily routines. Most importantly, show how the technology directly benefits workers, whether by improving safety, making tasks easier, or making their work more efficient.
- **Identify a digital champion:** A digital champion is an employee who helps introduce and support the implementation of new technologies by communicating the benefits, answering questions, addressing concerns, and offering peer-to-peer support. Small companies may even choose to take a team-wide approach instead of designating a single champion. Strong digital champions represent their peers well, communicate effectively across all levels of the organization, embrace technology with curiosity and flexibility, and provide meaningful feedback about what is working, and what is not.
- **Avoid punitive use:** Safety technology should be used to support and protect workers, not to punish them. If employees believe these tools are being used to discipline or monitor behavior unfairly, trust and engagement will erode quickly. Consider disciplinary action only when a worker's behavior poses a clear, intentional danger to themselves or others. Prioritize learning, coaching, and improvement over enforcement, to build a culture where safety is shared, not driven through fear.

Technical Support and Partnerships

When adopting new technology, having the right technical support can make all the difference. Without dedicated IT teams, small businesses often rely on vendors for guidance, training, and troubleshooting. Building a strong partnership with your technology provider ensures that you're not navigating implementation and maintenance alone. To get effective technical support, and to make the most of a new safety technology, you can take the following steps:

- **Select** a vendor that provides ongoing support, such as dedicated account representatives, onboarding, training, and technical support
- **Establish** a clear point of contact to act as your main liaison, and request the same from the vendor—this ensures consistent communication and strengthens the working relationship
- **Schedule** periodic calls or emails to review how the technology is performing, and flag any issues early
- **Communicate** your needs clearly, and ask what's possible, as vendors may be open to tailoring their solutions to better fit your operations

If you have limited IT resources, it's important to select technologies that don't require complex infrastructure or heavy configuration. In general, cloud-based technologies (software or services accessed via the internet), mobile-based applications, and plug-and-play solutions (which work immediately after setup) are the easiest to implement. These options reduce the burden on your internal teams, offer quicker deployment, and are typically more cost-effective for small businesses or beginners to technology.



Step 4: Make the Business Case

Another common barrier to innovation is making the business case for safety technologies. The good news is that technology is more affordable now than ever, making it more accessible for organizations, big and small. However, making the business case for safety solutions can still be difficult, especially when cost savings come from preventing incidents—benefits that are harder to quantify, especially if you don’t have historical safety data to support these claims. Safety investments often compete with revenue-generating priorities, and organizations may lack the data or tools to demonstrate a clear return on investment (ROI) for safety technology.

Table 2. Potential Benefits of Safety Technology

Tangible Benefits	Intangible Benefits
• Fewer workplace injuries, illnesses and fatalities • Lower workers’ compensation costs and insurance premiums • Decreased medical and injury-related expenses • Stronger regulatory compliance • Avoidance of OSHA fines, legal fees, or penalties • Improved productivity and operational efficiency	• Improved employee morale, trust and sense of safety • Improved retention • Stronger safety culture and maturity • Enhanced organizational image and branding • Reduced worker stress, anxiety, and mental fatigue • Enhanced ability to attract clients or customers



Calculating Return on Investment (ROI) for Safety Technology

To calculate the ROI for safety technology, begin by estimating the cost of a single workplace incident, factoring in the total costs, such as medical expenses, lost productivity, and [insurance premiums](#). The National Safety Council estimates that a single medically consulted injury costs an organization, on average, \$43,000 (Injury Facts, 2025). OSHA also has a [Safety Pays Injury Estimator Tool](#), which can be a helpful guide for estimating the overall costs of workplace injuries. Even if past incidents are rare, understanding the potential cost of a single serious injury provides a critical baseline for understanding the costs of operating “business as usual.”

Beyond injury prevention, many safety technologies also deliver operational benefits. For example, while digital EHS management tools may not directly eliminate or address hazards, they can streamline safety reporting, improve hazard tracking, and free up valuable time to engage with workers and manage other aspects of operating your business. These improvements support overall business efficiency and should be factored into ROI assessments.

To estimate ROI, add the total cost of the technology—including purchase, installation, training, and maintenance—and compare it against the combined value of injuries prevented, operational efficiencies gained, and productivity improvements over time. A basic formula to guide this calculation is:

$$\text{ROI (\%)} = (\text{Money Saved} - \text{Cost of Technology}) \div \text{Cost of Technology} \times 100$$

If you don’t have an internal finance team, consider consulting a bookkeeper, accountant, or small business advisor to help validate your numbers. You can also ask your technology vendor for case studies or benchmarks from similarly sized organizations. Even conservative estimates often show that targeted safety investments quickly pay for themselves by reducing risk and improving operations.

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The Work to Zero program at the National Safety Council has twelve [return-on-investment calculators](#), designed to help organizations assess the financial benefits of investing in safety technologies by comparing the costs of current practices against potential savings from implementing solutions like wearables, mobile applications, and proximity sensors.

There are also strategies organizations can use to reduce the initial investment costs associated with safety technology, including:

- **Collaborative Purchasing:** By partnering with other businesses, trade associations, or local networks, companies can pool their purchasing power to negotiate volume discounts on equipment or software. This collaborative approach helps lower individual costs, and makes advanced safety tools more affordable for everyone involved.
- **Grants and Funding Opportunities:** Grants and funding programs exist to help employers, especially small to medium-sized organizations, offset the cost of piloting or implementing new safety technologies. These are often available from government agencies, industry associations, research institutions, and nonprofit organizations.
- **Vendor Financing:** Some technology providers offer financing programs that allow businesses to spread payments over time instead of paying the full amount up front. These options can include installment plans, deferred payment agreements, or lease-to-own arrangements. When exploring financing, review the terms carefully, and pay attention to interest rates, fees, and total cost over time, to ensure that the arrangement supports your budget and long-term ROI.
- **Pilot Programs:** Launching a small-scale pilot lets you test new technologies in the targeted area, whether it is a specific process, location, or team, before investing in a full-scale rollout. This approach reduces investment risks, as it allows you to gather feedback, and make any necessary adjustments before scaling organization-wide.
- **Insurance Rebates:** Some insurance providers offer premium reductions or rebates for implementing approved safety technologies. These incentives can help offset initial costs and demonstrate a proactive commitment to risk reduction, potentially strengthening your standing with carriers over time. Reach out to your insurer to ask whether your safety investments qualify for any premium reduction or rebate programs.
- **Tax Incentives and Credits:** Many local and national governments offer tax incentives for businesses that invest in workplace safety improvements or technology upgrades. These may come in the forms of deductions, credits, or accelerated depreciation. Consult a tax advisor to identify programs relevant to your industry and region.

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The Work to Zero program hosts an annual [Safety Innovation Challenge](#), providing organizations with the opportunity to apply for up to \$25,000 in funding to pilot and test technologies aimed at reducing serious injuries and fatalities (SIFs). Similarly, the [MSD Solutions Lab Pilot Grants](#) program offers up to \$20,000 in funding for organizations to pilot solutions that address musculoskeletal disorder (MSD) risks in the workplace.

Use of AI for Ergonomic Risk Assessments at Superior Tube Products



Superior Tube Products (STP), a manufacturer and small business based in Iowa, used a pilot grant from the National Safety Council's [MSD Solutions](#) Lab to partner with an AI-driven ergonomic assessment provider. Workers at STP faced an increased risk of musculoskeletal disorders (MSDs) stemming from repetitive and physically demanding tasks, such as loading and unloading steel tubing, assembling parts, and conducting quality inspections. To address these risks, STP sought a more efficient alternative to traditional ergonomic assessments. The solution analyzes short video clips taken of employees performing high-risk tasks, and assigns risk scores for different areas of the body (e.g., upper and lower trunk), helping to pinpoint the motions most likely to contribute to MSD-related injuries.

With these insights, STP was able to make small, but impactful, changes to the workplace to reduce these motions. For example, replacing long spray wands with shorter, ergonomic nozzles significantly eased shoulder and wrist discomfort in one area of the production floor. Notably, the pilot led to a 98% reduction in workers' compensation costs, and reduced their total recordable injury rates (TRIR) from 13.6% to 5.5% in one year. By leveraging external funding to reduce up-front costs, STP was able to trial innovative technology, drive measurable improvements, and better protect its workforce without overextending its resources.



Step 5: Pilot and Implementation

You've identified a technology and made the business case, and now you're ready to begin implementing the solution in your organization. A pilot is an excellent way to learn, make corrections on a small scale, and reduce your initial investment in technology. To make sure the process is as smooth as possible, there are a few key steps you should take to ensure success:

1. Define the Purpose:



Begin by clearly defining what you want to achieve, keeping these goals simple, specific, and measurable. A pilot is not just about trying something new; it's about solving a specific problem or measurably improving a process. To find your "why," consider the following questions:

- **What specific task, hazard, or risk are you trying to address with this technology?**
- **What is the primary goal of the use of the technology (e.g., to reduce incidents, proactively identify hazards, or streamline EHS processes)?**
- **What is the goal of the pilot (e.g., to validate the use of a new technology, assess worker acceptance, or test its integration into existing systems)?**

2. Set Clear Goals:



Next, you should determine how you are going to assess the success of a pilot, including any key performance indicators (KPIs) or other metrics. As a small business, you may not have historical injury data to compare to, or this may be the first time you are formally tracking certain risks. In that case, focus on simple, practical indicators that show whether the technology is making a positive impact (see Table 3 for examples).

It is also important to recognize that better data collection can sometimes make outcomes appear worse before they get better. For example, if an organization implements a mobile application for hazard reporting, the organization may initially see an increase in the number of reports compared to its old system. This does not mean that there are more hazards present; it could be a strong indicator that the new system is working as intended, making it easier and more accessible for employees to report issues. When reviewing pilot results, think about how changes in reporting behavior, data quality, or worker engagement may influence the numbers. Remember, increased visibility into risks is a positive step toward building a stronger, more proactive safety culture.

3. Choose a Test Group or Area:



When you're ready to test a new technology, start small, and scale up—this will help you identify challenges, gather feedback, and overcome barriers while minimizing disruptions to your organization. Select a group of employees, a specific task or role, or a location where the technology can have a clear impact. Where possible, select a group that is going to be representative of those who will ultimately be using the technology. It is often just as valuable to choose an area where you are experiencing the most challenges, so you can evaluate whether the technology will make a meaningful difference. Consider the following questions:

- **Where is the targeted hazard, risk, or inefficiency the most common or the most severe?**
- **Which employees, teams, or processes are most likely to benefit from the technology?**
- **Who is the end user of the technology? Are they represented in the pilot?**
- **Will the selected group use the technology enough to meaningfully evaluate the technology within the pilot period?**

4. Set a Timeline:



Establishing a clear timeline for your pilot helps to ensure that clear expectations are set from the beginning. The length of time needed to adequately assess the technology is going to vary, based on the selected vendor, the type of technology, and resource and time constraints. This timeframe should be long enough to capture meaningful data, allow users to become familiar with the technology, and identify any potential challenges. While there's no golden rule for pilots, aim to run trials for at least 90 days, once the technology is fully implemented and in regular use. More complex solutions, like automation or robotics, may require longer evaluation periods.

5. Gather Feedback:



At this stage of your innovation journey, it's important to gather feedback from the end users of the technology as often as possible. Allow employees to try the technologies, and encourage them to share their experiences, good or bad. This feedback loop is invaluable for identifying any issues with usability, functionality, or integration into daily tasks. It also provides insights into how the technology can be optimized to better meet the needs of the workforce. [Appendix C](#) of this guide provides example questions you can use to gather feedback on safety technology.

6. Assess and Iterate



To understand whether the new safety technology is making a difference, it helps to compare your pilot results to a few key reference points. One common approach is to use baseline data. This is information collected before the pilot begins, such as recordable injuries, time to complete a task, or the number of reported hazards. Comparing this baseline to data collected after the pilot can show how the technology is affecting those metrics.

If you don't have historical data, another helpful method is to use a comparison group. This might be a different team or site doing similar work without the new technology. By comparing results between the two groups, you can better understand whether any improvements are linked to the technology, providing a valuable point of reference when trying to assess impact.

Finally, use what you learn from baseline or comparison data to make targeted adjustments, refine your approach, and improve results over time. Safety innovation is not a one-time fix; it's a continuous process of learning, adapting, and evolving alongside your business. You may not find the perfect solution right away, and that's OK. Early setbacks can still provide valuable insights into what tools are most effective, what needs to change, or whether a different strategy might work better.

Use of Drones for Crane Safety



Huddleston Crane Service, a small, family-owned company in California, began using drones in 2009 to enhance safety during crane operations, particularly during inspections at height and in hazardous terrain. By capturing real-time, high-resolution images and video, drones minimize worker exposure to hazards, and improve the quality of lift planning (the process of evaluating how to safely move a load using a crane or other lifting equipment) and emergency preparedness, enabling operators to assess job sites more accurately than traditional methods like outdated satellite images.

The drone program also brought substantial efficiency gains. For example, the company was able to survey over 300 tanks in just eight days, a task that would have taken nearly a year without the drones. Huddleston's experience highlighted several best practices for a successful drone program: thoroughly researching drone features and regulations, budgeting for training and certification, and training multiple operators to ensure flexibility and avoid disruptions. Over time, the company has continued to invest in upgraded drone technology, such as thermal and zoom capabilities, reinforcing its dual role in driving both safety and efficiency in the workplace.



The U.S. Small Business Administration offers guidance for employers on emergency preparedness, including [planning resources](#) and [virtual and in-person](#) educational trainings.

Table 3. Example KPIs to Track Pilot Success

Example KPI	Description	Example Metrics
Risk Reduction	Track whether the pilot leads to fewer safety incidents or improves risk identification.	• Decrease in recordable injuries or near misses • Fewer days away from work or restricted duty cases • Increased reporting of hazards or unsafe conditions • Fewer repeat incidents in the same location or task
Cost or Claims Impact	Identify any reduction in safety-related costs.	• Fewer workers' compensation claims • Reduced medical expenses • Stabilized or reduced insurance premiums • Fewer paid leave hours linked to work-related injuries
Operational Efficiency	Assess whether there are measurable improvements in efficiency or productivity.	• Faster completion of EHS-related tasks • Reduced downtime due to safety incidents • Improved communication with frontline workers • Fewer production or service delays tied to safety-related stoppages
Employee Engagement	Evaluate how involved and receptive employees are to the new technology.	• Improvements in employee engagement survey results • Positive informal feedback • Increase in voluntary hazard reports or near-miss reporting • Increased participation in new procedures



Conclusion

Adopting safety technology doesn't have to be overwhelming or expensive. By following the five steps of the Safety Innovation Journey—assessing your risks, identifying solutions, determining your readiness, building the business case, and piloting new solutions—you can take meaningful steps toward a safer, more efficient workplace. Whether you're just getting started or looking to build on existing efforts, the key is to start small, scale gradually, involve your team early and often, and choose technologies that align with your specific needs and work environment.

The National Safety Council's [Work to Zero](#) initiative offers free tools, case studies, and step-by-step resources to help organizations eliminate workplace injuries and fatalities through technology. Whether you need help identifying risks, selecting solutions, or making the business case, Work to Zero provides practical guidance to move safety innovation forward at any stage.

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Additional Resources

Work to Zero Pilot Grants

[MSD Solutions Lab Solutions Pilot Grant](#)

[Small Business Safety and Health Handbook](#) (OSHA, 2024)

[Small Business Safety and Health Manual](#) (2nd Edition) (NSC, n.d.)

[U.S. Small Business Administration](#)

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Appendix A: Sample Safety Questions for Employees (1 of 2)

Employee Name: _____

Job Title: _____

Department/Work Area: _____

Date: _____ Location/Site: _____

1. What safety issues or potential hazards have you encountered while doing your job?

2. What steps do you take to stay safe when working around potential hazards?

3. Are there any areas in the workplace where you feel unsafe or uneasy? Please explain.

4. Do you experience any discomfort, pain, or strain during or after work? If yes, what tasks or activities are related to it?

5. Have you ever witnessed or been involved in a near miss—an incident that almost caused an injury or accident?
If yes, describe what happened? _____

6. Do you feel you've received effective safety training to do your job confidently and safely?

7. Are there any safety rules or procedures that are unclear or difficult to follow in practice?

Appendix A: Sample Safety Questions for Employees (2 of 2)

8. Have you noticed any equipment, tools, or machines that appear damaged, are malfunctioning, or are in need of maintenance? _____

9. Do you feel comfortable reporting safety issues or concerns to a supervisor? Why or why not?

10. What changes or improvements would you suggest to help make our workplace safer?

11. Are there any tasks you think could be safer if we had different tools, equipment, or processes in place?

Appendix B: Sample Questions for Prospective Vendors (1 of 3)

Vendor Name: _____

Date: _____ Location/Site: _____

Technology Fit and Effectiveness

- How does this technology address the problem we are trying to solve?

- Do you have examples or case studies from businesses like ours?

- Can you provide metrics or data, such as reductions in incidents or efficiency improvements, which demonstrate the impact of your technology?

- Is the technology intrinsically safe for use in hazardous environments?

Implementation and Maintenance

- What does the setup process look like, and how long does it typically take?

- What kind of training or onboarding is needed to use this technology?

- What ongoing maintenance or updates are required, and who handles them?

- What infrastructure, equipment, or connectivity is required to use this technology?

Appendix B: Sample Questions for Prospective Vendors (2 of 3)

- How does this technology integrate within our existing systems?

- How easily can this technology scale as our business grows?

Support Services

- What kinds of support and training do you offer, before, during, and after implementation?

- Do we have a dedicated account manager or technical support team?

Cost and Licensing

- What are the up-front and recurring costs?

- Are there additional fees for training, updates, or support?

- Is there a trial period or demo available?

- Is this a subscription-based model or a one-time purchase?

- What level of flexibility do you offer in your pricing or subscription model if our needs change over time?

¹Intrinsically safe equipment is designed to prevent sparks or heat that could ignite flammable gases, vapors, or dust—essential for industries like oil and gas, manufacturing, agriculture, mining, and chemical processing

Appendix B: Sample Questions for Prospective Vendors (3 of 3)

Data and Privacy

- What kind of data is being collected, and who has access to it?

- How is that data stored, and for how long?

- Who has access to the data? Can these permissions be customized?

- How is sensitive data encrypted or otherwise protected?

Appendix C: Sample Technology Feedback Questions for Employees

Employee Name: _____

Job Title: _____

Department/Work Area: _____

Date: _____ Location/Site: _____

Vendor Name: _____

1. Are there any challenges you face when incorporating this technology into your routine?

2. Are there any features that are confusing or difficult to operate?

3. Is the technology comfortable to use for extended periods?

4. Do you feel safer with the new technology in place?

5. Have you noticed any improvements in safety since its implementation?

6. Has the technology impacted your productivity positively or negatively?

7. Was the training provided sufficient to understand and use the technology effectively? If not, what would help?



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