

# Determining the ROI of Safety: Why Data Matters

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**“If you’re trying to prove the value of a negative, it comes down to doing a better job of assessing the most likely things that can happen within the industry you do business in.”**

Trevor Bronson,  
Intelex Strategic  
Development Manager



## Introduction

The inherent value of occupational health and safety (OHS) for every business and organization makes it seem unimaginable that anyone would argue the importance or necessity of protecting workers on the job.

So why can it be so difficult to obtain additional and necessary investment to improve safety performance? Perhaps the answer lies in the capitalist axiom that business is business, after all, and any investment made must be measured by a resulting payback.

When it comes to environment, health and safety (EHS) spending: “You’re usually asking to take (investment) money away from something that may directly create value – like a more efficient production process or improving a supply chain. Something where you say, ‘Hey, if we do this, we save two million dollars a year or if we do that, we generate four million dollars more,’” says Intelex Strategic Development Manager Trevor Bronson. “Sadly, that’s just not how EHS works.”

When it’s necessary to quantify EHS investment dollar benefits, return on investment (ROI) comes into play. And while there are many tools and calculators available to help construct an ROI, before spending the time and effort to build a business case, it’s necessary to understand a couple of fundamental things – namely, for whom ROI is important and whether it is truly how a business thinks about safety.

When it comes to EHS, it’s a matter of building a business case for an investment that addresses the potential possibilities of “what if” something awful were to happen and selling the need for risk-mitigation investment even when perhaps few, if any, incidents have occurred.

“There’s a legitimate argument to be made that if incidents aren’t happening then (you might assume) whatever we’re doing in EHS works just fine, so why do we need to invest,” Bronson says. “So, if you’re trying to prove the value of a negative, it comes down to doing a better job of assessing the most likely things that can happen within the industry you do business in.”







When calculating ROI for EHS, general data provides a solid starting point for determining direct and indirect costs. By moving beyond generally available data, you can consider scenario modeling, in which you're not simply looking at overall averages for incident rates or costs, but diving into data that comes from similar organizations and peer groups. And you need to understand the investment expenses as well as the types of injuries and near misses that happen in industries like your own.

This report offers guidance on key data needed to construct an ROI calculation for EHS and links to available resources that can help. It also explains where and how ROI fits as part of any plan to solicit business investment in health and safety.

## What is ROI and How Does it Apply to EHS?

We've heard the term ROI, but do we truly understand its meaning? ROI is a way to measure value gained or lost on an investment. Calculating ROI is a matter of dividing the cost of an investment by the monetary value gained through its use over a certain time. ROI is typically expressed as a percentage and the simplest way to calculate it is to divide the "benefit" value by the initial and ongoing investment "cost."

$$\text{ROI \%} = (\text{Investment Gain} - \text{Investment Cost}) / \text{Investment cost} \times 100$$

The financial payoff of EHS investment is seen in the reduction or elimination of workplace incidents that ultimately incur wide-ranging direct and indirect expenses that this report will outline in a later section. The financial benefit of improving EHS performance with software and other technologies and the potential ROI gained can be calculated by estimating the cost of an initial investment that provides corrective actions and safety system improvements needed to reduce or eliminate potential incidents against the total direct and indirect expense of potential accidents.

**“I don’t want to say that ROI isn’t important. It’s a pillar, but it’s not the foundation.”**

**Trevor Bronson,**  
Intelex Strategic  
Development Manager



EHS ROI is typically used to show value and justify additional investment. Purchasing an EHS software solution often requires the “buy in” of many people throughout an organization. Some understand the cultural importance of keeping workers safer, while some understand the efficiency value that EHS software delivers, but others need to see an ROI in EHS spending vs investment in other business areas or projects that contribute more directly to the bottom line.

“I generally see ROI as a thing EHS people want to use to convince non-EHS folks why they need to invest,” Bronson says. “In my experience, ROI has been something that EHS people ask for to give to non-EHS people. ROI is simply one of the levers you can pull for an audience that cares about it.”

But ROI for EHS has its time and place. It’s not where your safety investment pitch should begin.

“I don’t think it’s the way to lead the sell,” Bronson says “I think the conversation starts with risk and with culture. And the ROI is tacked on. I don’t want to say that ROI isn’t important. It’s a pillar, but it’s not the foundation. There are going to be some who care more about ROI, but by the time you’re having that conversation, you’ve should have tee-ed up more benefits than just that.”

“It ends up not being used as much as you’d think and not coming in until the late stages – something to push a deal across the finish line,” he adds. “Up to that point, people recognize they simply need more efficient processes and they need to lower risk. People don’t always need a dollar value associated with that.”

Atlanta-based EHS management consultant Subena Colligan agrees. She says a business leadership-endorsed strategy of investment to solve EHS problems should be established first. That strategy should focus on eliminating costly organizational business pain – for example, the need for automation to achieve greater EHS efficiency and performance, greater safety measures to reduce or eliminate costly incidents and fatalities or compliance measures necessary to avoid expensive regulatory fines.

“You need to identify the pain and how the investment solution deals with or solves the pain,” she says. And it’s also important to recognize not everyone within an organization necessarily cares about the same costs. You need to know what key individual stakeholders care about most. Colligan recalls her experience as a safety professional.



“My finance guy didn’t really care about the workers’ compensation cost because that bucket of money came from another part of the corporation...but his boss did,” she says. “So, make sure you understand what your stakeholder cares about. You can throw out all sorts of figures, but if it doesn’t speak to their performance metrics and what they care about, then it’s not likely to be successful.”

Lead the investment conversation with a strategy on which business leadership has signed off. Then the discussion becomes whether the resources are in place to achieve the strategic objectives that leadership has agreed to. Logically, leadership should then be more willing to provide necessary support and funding for the agreed-upon outcomes of that strategy, Colligan says.

## The Cost of Workplace Injuries

There’s a significant price to pay for the occupational incidents and fatalities that happen on the job.

In 2020, the [National Safety Council \(NSC\)](#) estimated injuries in the workplace cost U.S. employers approximately \$165 billion. That total included \$44.9 billion in wage and productivity costs, \$34.9 billion in medical expenses, \$12.8 billion in employers’ uninsured costs and \$61 billion in administrative expenses. Overall, it breaks down as follows:

- \$1,100 per worker
- \$1,310,000 per death
- \$44,000 per medically consulted injury



Employers pay almost \$1 billion per week for direct workers' compensation costs alone, according to the United States Department of Labor. That includes the direct cost of workers' compensation payments, medical expenses and legal services plus the indirect costs for replacement employee training, accident investigation, corrective measures, lost productivity and repairs for damaged equipment and property.

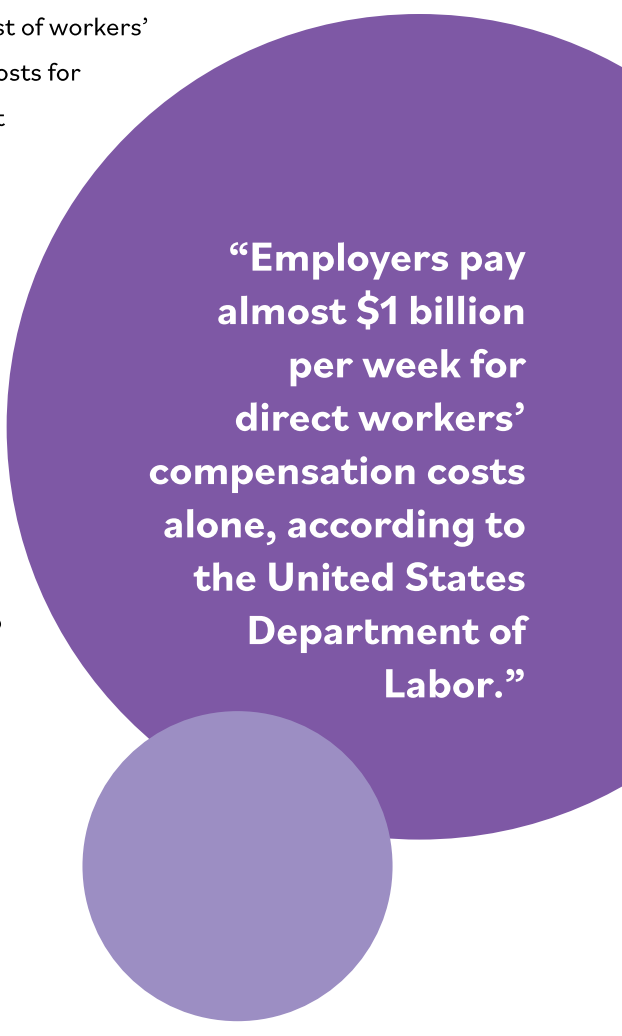
In Great Britain, the nation's [Health & Safety Executive](#) estimates the cost of workplace injuries and illnesses at £16.2 billion annually. [Safe Work Australia](#) estimates workplace injuries and illnesses in that country amount to \$61.7 billion annually, which is 4.1 percent of that nation's gross domestic product (GDP), and an average cost of \$116,400 per case. The Conference Board of Canada estimates preventable workplace injuries have [a total economic cost of C\\$26.8 billion](#) for that country.

Liberty Mutual Insurance reveals in its [latest Workplace Safety Index](#) that the Top 10 causes of workplace injuries and their cost to businesses in the United States.

1. Handling objects, totaling \$13.3 billion annually
2. Falls on the same level, totaling \$10.58 billion annually
3. Falls to a lower level, totaling \$6.26 billion annually
4. Being hit by objects, totaling \$5.61 billion annually
5. Awkward postures, totaling \$4.71 billion annually
6. Vehicle crashes, totaling \$3.16 billion annually
7. Slip or trip without fall, totaling \$2.52 billion annually
8. Colliding with objects or equipment, totaling \$2.46 billion annually
9. Caught in equipment or machines, totaling 2.01 billion annually
10. Repetitive motions involving microtasks, totaling \$1.66 billion annually

Private industry employers reported 2.7 million nonfatal workplace injuries and illnesses in 2020. In that same year, the incidence rate of total recordable cases (TRC) in private industry was 2.7 cases per 100 fulltime equivalent (FTE) workers.

To gain a complete picture of the total cost to employers of workplace injuries and fatalities, it is necessary to consider direct and indirect expenses. It's easier to assess the hard value of direct costs but more difficult to determine what the indirect costs might be. A Liberty Mutual research study concluded indirect vs. direct expenses can be much greater – estimating that for every dollar spent on direct costs, employers spend approximately \$2.12 on indirect costs. Conversely, the same study revealed that on average, every dollar spent on improving workplace safety returns \$4.41 to the business.



**“Employers pay almost \$1 billion per week for direct workers’ compensation costs alone, according to the United States Department of Labor.”**



Direct costs of workplace injuries and fatalities may include:

- Workers' compensation
- Medical treatment
- Medicine
- Therapy
- Civil liability damages
- Litigation expenses

Indirect costs may include:

- Wages lost during work stoppage after an injury occurs due to time needed to assess a worker condition and the condition of equipment, co-workers who stop to help, internal first responders and time spent seeking medical treatment
  - OSHA fines and enforcement actions including the expense of fines and penalties, hiring attorneys to help challenge or abate citations, administrative time and consultant fees
  - Recovery of lost production which can include overtime pay, hiring and training temporary workers, reduced quality and productivity and the need to accommodate an injured worker's physical limitations
  - Additional human resources such legal counsel, third party consultants and medical advisors
  - Administrative time spent by staff, including HR, safety personnel and supervisors to complete documentation, coordinate return to work and investigation reporting
  - Increase in workers' compensation coverage due to higher premiums
  - Lost production time
  - Reduced morale among employees and perhaps resulting lower efficiency
  - Cost of completing paperwork generated by the incident
  - Loss of productivity or service standards
  - Building and/or vehicle damage
  - Equipment damage
  - Product/material damage
  - Emergency supplies
  - Interim equipment rentals
  - Recruiting, hiring and training replacement workers
  - Loss of business and goodwill
- 





None of the above considers the personal cost to employees who fall victim to workplace accidents. These can be devastating and has driven some individuals and families into poverty as workers' compensation pays only a percentage of lost income for employees on long-term disability. There's also the financial strains of transportation to and from necessary and ongoing medical treatment, hospitalization and the expense of in-home care if needed. And there's no price that can be attached to the loss – permanently or temporarily – that an accident victim may suffer if they can no longer be an active member of his or her family.

## Building a Business Case

***Making the Business Case for Safety Innovation*** is a report from the NSC that outlines eight technologies that can reduce injuries and fatalities in the workplace as part of its [Work to Zero](#) initiative to eliminate workplace fatalities by 2050 through technology adoption. The report also details how EHS managers might build a business case for safety technology investment.

As a first step, the NSC recommends employers should determine their business goals and consider how technology fits into strategic plans and ongoing initiatives. Once selected, the next step is to determine whether that technology can be seamlessly adopted without adversely impacting operational activities, such as job hazard analysis and document control processes. The digital readiness of infrastructure, processes and people must also be critically analyzed prior to any implementations to ensure these operational components can adapt.

Calculating the financial implications of technology adoption is an essential next step towards making the management case to allocate a project budget. An ROI calculator might be used to help build and support a business case for innovation by providing a metric for investment profitably as well as assessing what can be earned and saved from implementation and comparing that to the cost of the investment itself. See the next section on **Helpful EHS Cost Calculation Tools** to learn more about the NSC Technology Investment Calculator.

A final step sees a chosen technology piloted to assess and determine the real-time effect on operations. Below is a simplified outline of steps for building a business case for EHS technology investment and implementation.

### Steps to Build a Business Case



*Source: Making the Business Case for Safety Innovation, NSC, 2022*

## Helpful EHS Costs Calculation Tools

### OSHA's \$afety Pays

There are many tools to help you assess and calculate the ROI for your investments in EHS, starting with this great one from the U.S. Occupational Safety and Health Administration (OSHA).

Their tool, the [\\$afety Pays](#) estimator, calculates the impact of occupational injuries and illnesses based on a company's profit margin, the average costs of an injury or illness and an indirect cost multiplier. According to OSHA, \$afety Pays raises awareness of how occupational injuries and illnesses can impact a company's profitability but should not be used as a detailed analysis of occupational injury and illness costs. By entering an injury type or your business's annual workers compensation costs, profit margin percentage and number of injuries, the tool calculates the direct and indirect business costs of these injuries and estimates the sales revenue that would need to be generated to cover these costs.





### Incident Rates for Safety Management

The U.S. Bureau of Labor Statistics (BLS) offers an [online calculator](#) to determine the relative level of injuries and illnesses among different industries, firms or operations within a single firm. Incident rates can help determine problem areas or progress made in preventing work-related injuries and illnesses. The BLS has also developed these [step-by-step instructions](#) to help employers evaluate their injury and illness records and provides a wealth of other information about incident rates for safety management.

### A Host of Other Useful EHS Calculation Tools

The Calculator Academy offers many simple-formula tools that can be useful for building an EHS ROI case and assessing different EHS reporting considerations, including:

- [Injury rate calculator](#)
- [Incident severity rate calculator](#)
- [Total recorded incident rate \(TPIR\) calculator](#)
- [Incidence rate calculator](#)
- [Cumulative incidence calculator](#)
- [Days away, restricted or transferred \(DART\) rate calculator](#)
- [Future loss of earnings calculator](#)
- [Disease prevalence calculator](#)
- [Attributable risk calculator](#)
- [Relative risk calculator](#)



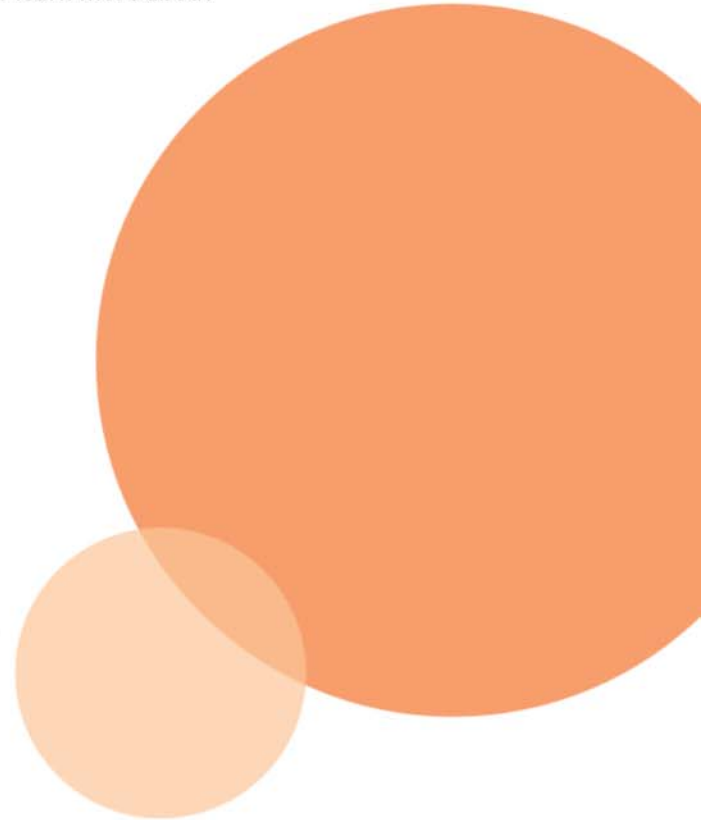
## NSC Calculation Tools

The [National Safety Council Mental Health tool](#) shows the cost of employee mental health and illness to employers. This easy-to-use cost tool provides businesses with specific information about the cost of workplace mental health – including depression, anxiety and general mental distress in the workplace – based on employee base, industry and state location.

The NSC's [Safety Technology Investment Calculator](#) helps to build a business case for employers looking to introduce safety technology. It's an easy-to-use ROI calculator that compares the cost of “business-as-usual” against the investments made to optimize operations using safety technology. A drop-down menu lets you select the technology you want to learn more about from a list that includes:

- In-cab fatigue monitoring
- Autonomous mobile robots
- Fatigue monitoring wearables
- Proximity monitoring wearables
- Permit to work software
- Drones for inspections
- Virtual reality for safety training
- Lone worker mobile applications

The calculator considers how many employees might use any of these technologies, whether shiftwork is a factor, the industry and the number of employees within the organization to produce a final report.





## Putting EHS ROI into Context

**“The investment (justification) is there if you are looking at a company that respects talent. Workplace safety is a great recruitment and retention tool. People just want to be safe.”**

Subena Colligan,  
EHS Management Consultant



EHS stakeholders don't always need to see quantified ROI to justify investment and those who purchase EHS software are generally more knowledgeable buyers who have specific reasons for needing a solution, Bronson says.

The ROI helps them get “over the hump,” but there may be reasons to seek out an EHS solution vendor that doesn't require building an ROI case. For example, an emerging corporate focus on employees and their well-being and doing good for people and the planet can become a case for investment.

Many people underestimate the value of workplace safety, Colligan says. She cited McKinsey research that shows among the 12 reasons why people leave their jobs without having another to go to is a lack of workplace safety. Similarly, workplace safety ranks as one of the main reasons why people accepted jobs.

“The investment (justification) is there if you are looking at a company that respects talent,” she says. “Workplace safety is a great recruitment and retention tool. People just want to be safe.”

It's also important to consider areas where EHS deficiencies may exist, determine what needs to be addressed and choose the EHS projects that provide business impact, says InteleX Director of Solution and Industry Marketing Debra Koehler.



“An ROI calculator on its own is not going to fly,” she says. “You’ve got to translate (your entire investment ask) into business impact terms. And you’ve got to have eyes open. It’s not just what you’re spending with an EHS vendor, it’s also the internal costs that you need to consider – especially for rollout.”

When calculating the investment spend in ROI, it’s important to include the many side costs – such as necessary retraining or the costs of integration and launching a project – expenses that often get overlooked. As you select what might seem to be the right projects, the additional internal expenses, both direct and indirect that are tied to your investment, might change your opinion once you calculate them, Koehler says, adding, “you have to be realistic about all of the costs.”

Finally, Colligan says it’s important when creating your ROI pitch to be selective with the volume of data you choose to present. Strike a balance between having too much data and not enough. By inundating an audience with too much data, they may not care and become disinterested. But if you don’t have enough, they’re apt to push back hard and seek assurance you’ve done due diligence. There is a sweet spot.

“I need five points of data and those five points should give me everything I need to influence a decision,” she says. In terms of determining what is the right data and information to present, Colligan recommends asking the fundamental question: How can I make my stakeholders successful with their managers.

“My most successful stint (as a safety professional) was reporting to a vice president whose performance was evaluated by a board of directors,” she recalls. “So, I had to understand how that board of directors looked at safety to influence how to be successful with him in getting the things I needed.

“I would ask, how can I help make you successful with your board of directors? How do I make sure you stand out from a safety perspective and do my part amongst your peers? That’s how we operated. We tried to influence the board of directors.”



**“In terms of determining what is the right data and information to present, Colligan recommends asking the fundamental question: How can I make my stakeholders successful with their managers.”**

## **Intelex Can Help You**

Need guidance and support in building a business case and ROI model for your EHS software investment? Reach out to an [Intelex solution specialist](#) who can help you.



## Free Trial

If you would like a free trial of our software solution, please click [here](#). You will have the opportunity to experience the basic “plug-and-play” software before making a commitment.

## Free Demo

If you would like a demonstration of our software solution, please click [here](#). This includes a product tour and a conversation with our software experts.

## Pricing Information

If you would like to receive a custom quote or pricing-related information, please click [here](#). This includes the total business value that our software will provide, projected ROI, financial benefits via a “hard dollar” analysis and total business benefits via a “soft dollar” analysis.

## About the Author

### Dan McLean

Dan McLean is a senior content marketing manager at Intelex Technologies. He has been an information technology editor and writer for more than 25 years and spent seven years as an IT market research director for International Data Corporation in Canada. In addition, Dan directed content marketing teams for Rogers Communications, OpenText Corporation and Vendasta Technologies, plus was a senior executive communication manager at Cisco Systems.

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