

Data & Methodology Note

Supporting documentation · All figures in USD

This note accompanies the CFO article at action-cards.com/en/for-cfos-the-financial-logic-behind-action-cards/ and documents the sources, assumptions and calculations behind every figure in it. The figures are illustrative benchmarks, not product-specific guarantees: actual results depend on a company's starting point, implementation quality and workforce profile. Nothing here is financial, legal or insurance advice.

1 Purpose and scope

The CFO article presents rounded, directional figures so that the argument stays readable. This note is where the exact arithmetic lives, so a reader can audit every number back to a named source. Where the article shows a rounded range, the derivation below shows the underlying calculation.

2 Sources

- **National Safety Council — Injury Facts 2024** (average cost of a work injury).
- **OSHA SafetyPays and NSC** (evidence that indirect costs are substantial).
- **U.S. Bureau of Labor Statistics (BLS)** — SOII / TRIR sector data 2024 (published January 2026) and Employer Costs for Employee Compensation (ECEC), Q2 2025.
- **Peer-reviewed skill-retention literature:** Anderson, Gaetz & Masse (2011); Smith et al. (2008); Arriaga et al. (2013).
- **Peer-reviewed safety-ROI literature:** Verbeek et al. (2009); Fabius et al. (2013); Institute for Work & Health (2023); Thonon et al. (2023); Bautista-Bernal et al. (2024).

3 The average cost of a workplace injury

Average cost per incident — ~\$52,800. NSC Injury Facts 2024 reports an average cost of about \$48,000 per medically consulted work injury. That figure already includes wage losses, medical expenses, administrative expenses and employer costs, and is an average across a wide range: minor cases cost far less, serious ones far more.

On top of this we therefore add a conservative 10% uplift for **some of** the indirect effects not included in NSC's figure — co-workers' lost productivity and overtime, supervisor and investigation time, higher insurance premiums at renewal, and fines — giving about \$52,800 per incident ($\$48,000 \times 1.1$). Other, equally real costs we have deliberately left out altogether: hiring and retraining a replacement, downtime and lost production beyond the overtime already counted, lost contracts and pre-qualification, litigation beyond workers' compensation, and long-term effects on morale and turnover. How the 10% is derived — and why it is set this low — is shown in the appendix; the real figure is likely higher, and even without any uplift the economic case still holds.

The 10% uplift is an Action-cards estimate, not a public statistic, and is kept separate from the NSC figure. It is open to debate; see the appendix.

4 The illustrative company (300-employee model)

The article's worked example uses a single, explicit company profile. All downstream figures scale directly from these assumptions.

Assumption	Value
Employees	300
Sector	Industrial production / logistics
Baseline TRIR	~3.0 (between BLS manufacturing 2.7 and transport & warehousing 4.5)
Recordable incidents / year	~9 (TRIR 3.0 = 3 per 100 workers × 300)
Total cost per incident	~\$52,800 (NSC \$48,000 + 10% uplift)
Baseline annual incident cost	~\$475,200 (9 × \$52,800)

5 Training-time saving (production)

BLS ECEC Q2 2025 puts total employer compensation at **\$46.30/hour**. A single 6-hour annual course therefore costs about \$278 per employee in lost production time alone (6 × \$46.30), or **\$83,340 for 300 employees** (6 × \$46.30 × 300) — before an instructor is paid (a further \$40–55 per person). Action-cards® micro-sessions attach to existing meetings, bringing this figure close to zero.

This ~\$83,000/year is a safe saving: it follows from the model regardless of whether the incident rate moves.

6 The return scenarios

Risk-dependent return = percentage reduction in incidents × baseline annual cost (\$475,200), plus the \$83,340 safe saving. The three scenarios below span the reduction range documented in the safety-ROI literature.

Scenario	Incident reduction	TRIR	Risk-dependent return	Safe saving	Total / year
Strong result	60%	3.0 → ~1.2	\$285,120	\$83,340	~\$368,000
Middle scenario	40%	3.0 → ~1.8	\$190,080	\$83,340	~\$273,000
Conservative	20%	3.0 → ~2.4	\$95,040	\$83,340	~\$178,000

Rounded for the article: for this profile the total return is in the order of **\$0.2 million to \$0.4 million per year**, of which about \$83,000 is independent of the incident rate — roughly half of the return in the conservative scenario. Reduction percentages are consistent with peer-reviewed literature but are not product-specific guarantees.

7 Market price benchmark (comparable EHS tooling, without Action-cards®)

This is a separate question from the return above: not what a company avoids, but what equivalent functionality costs to buy. Figures are based on publicly available market data for EHS software.

Comparable digital safety system — without Action-cards®	Annual cost
EHS incident-management platform (10 admin users)	\$18,000–36,000
Safety LMS with gamification, video and quizzes (300 users)	\$30,000–50,000
Implementation and setup (amortised over 3 years)	\$3,000–7,000
Manual incident reporting to insurers / authorities	\$5,000–15,000
Comparable system, total	~\$56,000–108,000 / year

8 The depreciation problem: why one-off training loses its value

The reduction percentages in section 6 assume that skills decay without reinforcement. The evidence:

- **Anderson, Gaetz & Masse (2011)** — observational study of 257 certified first-aiders in industrial and service workplaces. Measurable decline in practical skills within 30 days; authors recommend refresher training as often as every 90 days.
- **Smith et al. (2008)** — among nurses, 63% passed the practical BLS test at 3 months (58% at 12 months); only 30% passed the more advanced ACLS test at 3 months, falling to 14% at 12 months.
- **Arriaga et al. (2013), NEJM** — cognitive aids (checklists) removed roughly 75% of omission errors during simulated crises.

9 Currency, rounding and precision

Cited source figures (NSC \$48,000; BLS \$46.30/hour; BLS TRIR 2.7 and 4.5) are reproduced at the precision the source reports. Derived figures are rounded in the article to reflect the uncertainty they carry — a modelled estimate built on an average cost, a modest 10% uplift and an assumed incident count does not warrant three significant figures. This note shows the exact arithmetic so the chain remains auditable; the article quotes the rounded form.

A Danish edition of this note states all figures in DKK, converted from these USD sources at **6.65 DKK per USD (18 October 2026)**.

10 Limitations

The figures describe a representative pattern across implementations, not any single customer. This note documents reasoning and sources; it is not a guarantee of outcome, and it is not financial or legal advice.

— References

- 1 NSC Injury Facts 2024: ~\$48,000 average cost per medically consulted injury, including wage losses, medical, administrative and employer costs. Plus a conservative 10% Action-cards uplift for selected knock-on costs (co-worker productivity, overtime, supervisor/investigation time, premiums, fines) — ~\$52,800 per incident in total; see appendix.
- 2 LTIR / TRIR per OSHA standard: $(\text{incidents} \times 200,000) \div \text{total hours worked}$. BLS SOII, published January 2026 (2024 data).
- 3 BLS ECEC Q2 2025: \$46.30/hour total employer compensation. $6 \times \$46.30 \times 300 = \$83,340$. Instructor fee \$40–55 per person in addition.
- 4 Verbeek et al. (2009); Fabius et al. (2013); Institute for Work & Health (2023); Thonon et al. (2023); Bautista-Bernal et al. (2024).
- 5 Anderson GS, Gaetz M, Masse J. First aid skill retention of first responders within the workplace. Scand J Trauma Resusc Emerg Med. 2011;19:11. Observational study of 257 certified first-aiders.
- 6 Smith KK et al. Evaluation of staff's retention of ACLS and BLS skills. Resuscitation. 2008. Also: Arriaga AF et al., N Engl J Med 2013;368:246-53.

Appendix How the 10% uplift was derived

The 10% is an estimate, not a measured figure, and is open to debate. The basis is set out here so the reader can judge it. We estimated each component the uplift covers as a share of NSC's \$48,000 average:

Component	Rough contribution (share of \$48,000)
Supervisor and investigation time	~2–3%
Co-workers' lost productivity	~1.5–3%
Overtime during absence	~2–5%
Higher insurance premium (experience rating)	~2–6%
Fines (expected value)	~0.5–1%
Total	~8–18% (centre ~12%)

We have placed ourselves at **the low end — 10%** — to be explicitly conservative. These are averages across the full severity mix behind NSC's figure: near zero for minor cases, larger for serious ones.

That these knock-on costs are real and material is well documented: OSHA SafetyPays, the Stanford/Business Roundtable study and the critical review in Manuele (2011) all put indirect costs at least on a par with direct costs. They rest on a narrower cost base (workers' compensation only) than NSC's, so we deliberately do not transfer their multipliers — they serve only to confirm that the components exist.

The uplift does not change the conclusion. **Remove it entirely** and use NSC's \$48,000 as-is, and the total return is still ~\$170,000–343,000 per year, with the ~\$83,000 safe saving there regardless. The economic case holds even without the uplift.

Appendix sources: OSHA Safety Pays (osha.gov/safetypays/background); Manuele F., Professional Safety (ASSP), Jan 2011; Business Roundtable / Stanford University (1981).