THE BUSINESS OF RISK

THE METRICS USED TO MEASURE RISK AND HOW TO USE TO YOUR BENEFIT

JUNE 16, 2022

OBJECTIVES

A firm's safety and loss prevention actitivies adds a diverse set of value to business.

What are the financial metrics used in business to evaluate the value of safety.

- What tools Do Insurance Carriers Use to Analyze Loss Potential
- How Workers Compensation Experience Mod Factors used to compare employers
- Strategies to Reduce Insurance Costs
- Making the Case for Loss Prevention Tools
  - Framing Savings
  - Framing ROI
- Total Cost of Risk for the Common Man

REDUCING INSURANCE COSTS THROUGH SAFETY AND LOSS PREVENTION

HOW A PREMIUM DOLLAR IS USED BY A P&C INSURANCE CARRIER

Claims: 60.2

Claim Handling: 10.9

Acquisition & Marketing: 13.8

Underwriting: 10.4

Federal & Foreign Taxes: 1.4

Profit & Contingencies: 3.2

Dividends: .06

Source: NAIC Industry Snapshot YE2019

HOW INSURANCE COMPANIES ANALYZE LOSS COSTS . . .

AND YOU SHOULD TOO

INSURANCE CARRIER TERMINOLOGY

Paid Loss: The amount of money an insurer had an obligation and paid to claimants (including direct claim handling costs) during a particular reporting period.

Reserve Loss: The insurance carrier's best estimate of the potential remaining amount of a loss that could be owed based on the information available at the time.

Incurred Losses = Paid Loss + Reserve Loss

Ultimate Losses: The loss amount when all claims are known within certainty and resolved. Could be years or decades in the future.

LOSS RATIOS

$$Loss\ Ratio = \frac{Claims^{*} + \ Claims\ Handling\ Expense}{Premium}$$

$$^{*}\ Claims = The\ amount\ of\ dollars\ incurred\ as\ a\ result\ of\ losses$$

Example: Claims and claims handling expenses for a policy period equals $50,000. The premium for the insurance policy was $100,000. The loss ratio would be:

$$50\% = \frac{\$50{,}000}{\$100{,}000}$$

Translated: For every $1 the insurance company collects in premium; the insurance company pays out 50% in losses.

PREMIUM / LOSS SUMMARY

12/31/2022
Valuation Date

Line	Carrier	Policy Term	Annual Premium	Paid Loss	Reserve Loss	Incurred Claims	Loss Ratio
WC	Liberty	6/1/2017	1,903,261	1,655,053	191,271	1,846,324	97%
	Liberty	6/1/2018	2,125,840	986,648	133,803	1,120,451	53%
	Travelers	6/1/2019	2,515,172	559,307	217,770	777,077	31%
	Travelers	6/1/2020	2,361,053	270,623	313,848	584,481	25%
	C N A	6/1/2021	2,641,468	9,568	38,312	47,880	2%
		TOTAL	**11,546,794**	**3,481,199**	**895,014**	**4,376,213**	**38%**

LOSS RATES

12/31/2022
Valuation Date

Incurred Losses
Divided by per
$100 Payroll

=

Line	Carrier	Policy Term	Incurred Claims	Payroll	Loss Rate
WC	Liberty	6/1/2017	1,846,324	31,103,928	5.94
	Liberty	6/1/2018	1,120,451	32,598,684	3.44
	Travelers	6/1/2019	777,077	32,063,567	2.42
	Travelers	6/1/2020	584,481	36,756,000	1.59
	C N A	6/1/2021	47,880	43,000,000	.11
		TOTAL	**4,376,213**		

AN EXAMPLE OF DEVELOPMENT

$ Losses

Accident occurs

Accident reported

Claim in process

Assigned to adjuster
$15,000 Formula Reserve

Individual reserve established
$35,000 Case Reserve

Pure IBNR

07/08/19

07/11/19

07/13/19

08/01/19

LIFE CYCLE OF A CLAIM RESERVE EXAMPLE

$ Losses

Estimate revised $55,000
Total Incurred

Surgery + Off Time
$150,000 Total Incurred

Released to work
$178,435 Total Paid

Claim closed
$0 Reserve

01/01/20

04/18/20

10/25/20

11/02/20

HOW TO MEASURE YOUR OWN LOSS DEVELOPMENT

Workers' Compensation Unlimited Losses

	2/17/2021					12/13/2021					Difference				
	# Claims	Open	Paid	Reserve	Total Incurred	# Claims	Open	Paid	Reserve	Total Incurred	# Claims	Open	Paid	Reserve	Total Incurred
6/1/2013	24	0	582,630	0	582,630	24	0	582,630	0	582,630	0	0	0	0	0
6/1/2014	23	0	460,748	0	460,748	23	0	380,594	0	380,594	0	0	-80,154	0	-80,154
6/1/2015	25	1	1,263,000	256,320	1,519,320	25	1	1,392,326	158,734	1,551,059	0	0	129,326	-97,587	31,739
6/1/2016	24	2	1,378,310	62,525	1,440,835	24	1	1,387,690	29,762	1,417,452	0	-1	9,380	-32,763	-23,383
6/1/2017	27	3	1,577,673	421,324	1,998,996	27	1	1,655,053	191,271	1,846,324	0	-2	77,380	-230,053	-152,673
6/1/2018	24	4	823,713	396,548	1,220,261	25	3	986,648	133,803	1,120,451	1	-1	162,935	-262,745	-99,810
6/1/2019	11	8	354,483	350,540	705,023	13	5	559,307	217,770	777,077	2	-3	204,823	-132,770	72,054
6/1/2020	3	3	30,946	52,051	82,997	8	6	270,623	313,858	584,481	5	3	239,677	261,807	501,484
6/1/2021						*2*	*2*	*9,568*	*38,312*	*47,880*					
Total	**161**	**21**	**6,471,502**	**1,539,309**	**8,010,811**	**171**	**19**	**7,224,438**	**1,083,510**	**8,307,948**	**8**	**-4**	**743,368**	**-494,111**	**249,257**

HOW TO MEASURE YOU OWN LOSS DEVELOPMENT

Loss Triangle

12/21/2021
Valuation Date

Months Aged

Months after expiration date of policy period

Policy Effective

	12	24	36	48	60
2017	823,054	1,192,838	1,798,295	1,998,996	1,846,324
2018	668,678	887,229	1,220,261	1,120,451	
2019	350,653	549,147	777,077		
2020	82,997	584,481			
2021	47,880				

Total Incurred

HOW TO MEASURE YOU OWN LOSS DEVELOPMENT

Loss Development Triangle

Months Aged

Months after expiration date of policy period

12/21/2021
Valuation Date

Policy Effective

	12	24	36	48	60
2017	1.45	1.51	1.11	.92	
2018	1.33	1.38	.92		
2019	1.57	1.42			
2020	7.04				
2021					
Average	**2.85**	**1.43**	**1.01**	**.92**	

$$\frac{1{,}192{,}838}{823{,}054}$$

ADJUSTING FOR TIME AND DEVELOPMENT

TREND

To bring up to today's dollars using inflationary factors

Medical Cost Inflation: the percentage increase in costs to treat patients from one year to the next, assuming benefits stay the same

Benefit Inflation: The change in benefits for the same type of injuries from prior year

Wage Inflation: Increase in people's pay

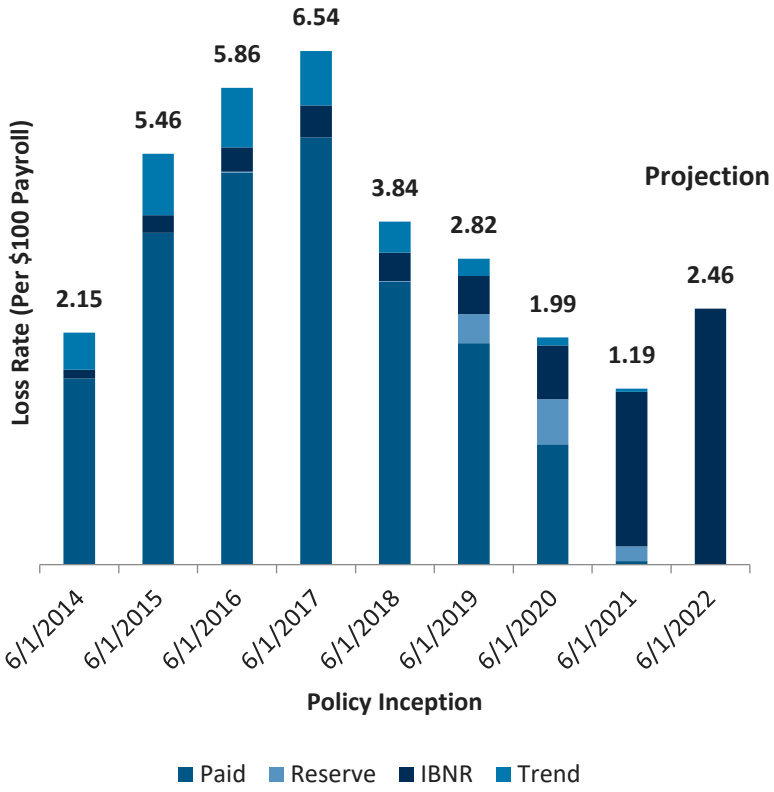
DEVELOP

To apply actuarial estimates to loss information to account for probable unknown future loss liabilities

IBNR: Incurred But Not Reported. An estimate of the amounts potentially owed for claims that have transpired, but not yet been reported

Development of Known Claims: Actuarial factors based on behavior of law of large numbers to account for increases from the time of loss reserve to final claim closeout

PROJECT LOSSES



Payroll: **$60,000,000**

Loss projections (Expected Losses) are predicated on the theorem that "past behavior is indicated of future performance"

If all environmental factors stay the same

Point out environmental factor **changes** that improve risk profile:

- Hired an additional loss prevention
- Implemented video in trucks
- Deployed wearable technology
- Stopped doing work in an unfavorable state
- Ceased doing a particular scope of work

TRENDED & DEVELOPED LOSS RATES

Line	Carrier	Policy Term	Incurred Claims	Ultimate Losses	Payroll	T & D Loss Rate
WC	Liberty	6/1/2017	1,846,324	2,034,196	31,103,928	6.54
	Liberty	6/1/2018	1,120,451	1,251,789	32,598,684	3.84
	Travelers	6/1/2019	777,077	923,719	32,063,567	2.82
	Travelers	6/1/2020	584,481	731,444	36,756,000	1.99
	C N A	6/1/2021	47,880	511,700	43,000,000	1.19
		2022	**Projection**	**1,476,000**	**60,000,000**	**2.46**

$$2.46 \text{ x } \frac{\$60,000,000}{100} = \$1,476,000$$

MAKING THE CASE FOR LOSS PREVENTION TOOLS

RETURN ON INVESTMENT

For some Contractors, the ROI can be thought of in different forms:

Reduction of Cost	The ROI will be seen over a longer course as a result of a reduction in incident frequency that leads to accident avoidance
Improves Morale	The ability to exonerate their driver for a single catastrophic non-preventable, no-fault accident produced enough cost avoidance savings to justify the expense for in-vehicle video immediately
Improves Productivity	A reduction in lower incident frequency means workers are not losing time healing from injuries and remain on the job

SAVINGS VS. ROI

SAVINGS
The portion of income not spent on current expenditures

ROI
Return on Investment compares how much you paid for an investment to how much you earned to evaluate its efficiency.

$$SAVINGS = Lower\ Than\ Expected\ Expenditures$$

$$ROI = \frac{(Benefit\ Gained\ - Money\ Spent)}{Money\ Spent}\ x\ 100$$

PROVING SAVINGS WHEN NOTHING HAPPENS

How to prove a negative

By saying something is "proved," is to establish beyond all possible doubt.

SAVINGS
The portion of income not spent on current expenditures

Ways to prove savings when there are no incidents, or nothing is paid out:

1. Compare the reduction in frequency and severity from prior years
2. Do better than the expected outcome (i.e., beat the loss projection)
3. Quantify the loss that didn’t happen with outside Stats and Facts.

MEDIAN COST OF FATALITY AUTO LOSSES

Exhibit 2: Median cost of vehicular losses with fatalities over $1 million

An analysis of 32,000 vehicular losses (including both trucks and cars) in Advisen's database indicates that while most losses remain relatively low, the costliest vehicular trucking losses have risen to unprecedented levels of severity.

EXPERIENCE MOD FACTORS (EMR'S) IMPACT ON INSURANCE COST

HOW TO CALCULATE YOUR LOWEST ACHIEVABLE EMR

	Primary Losses	Stabilizing Value	Ratable Excess	Totals
Actual	(I) 46,647	C * (1 - A) + G 137,138	(A) * (F) 18,539	(J) 202,324
Expected	(E) 36,829	C * (1 - A) + G 137,138	(A) * (C) 14,424	(K) 188,391

	ARAP	FLARAP	SARAP	MAARAP	Exp Mod
Factors	1.06	1.08			(J) / (K) 1.07

Plug in zero losses for Actual Primary and Actual Ratable Excess losses. This assumes there were no losses for the last three years (not including the most recent).

	Primary Losses	Stabilizing Value	Ratable Excess	Totals
Actual	(I) 0	C * (1 - A) + G 137,138	(A) * (F) 0	(J) 137,138
Expected	(E) 36,829	C * (1 - A) + G 137,138	(A) * (C) 14,424	(K) 188,391

	ARAP	FLARAP	SARAP	MAARAP	Exp Mod
Factors	1.06	1.08			(J) / (K) .73

EMR'S IMPACT ON BUSINESS

- An EMR can increase, not affect, or lower an employers workers compensation cost.

Classification	Payroll	Divided by 100	Rate per $100 of Payroll	Premium
Clerical	$ 70,000	700	$0.75	$ 525
Roofer	$200,000	2,000	$63.17	$126,340

Total Premium = $126,865
Mod Factor = 1.25
Modified Premium = $158,581

Premium		Mod Factor		Modified Premium
$100,000	x	0.75	=	$ 75,000
$100,000	x	1.00	=	$100,000
$100,000	x	1.25	=	$125,000

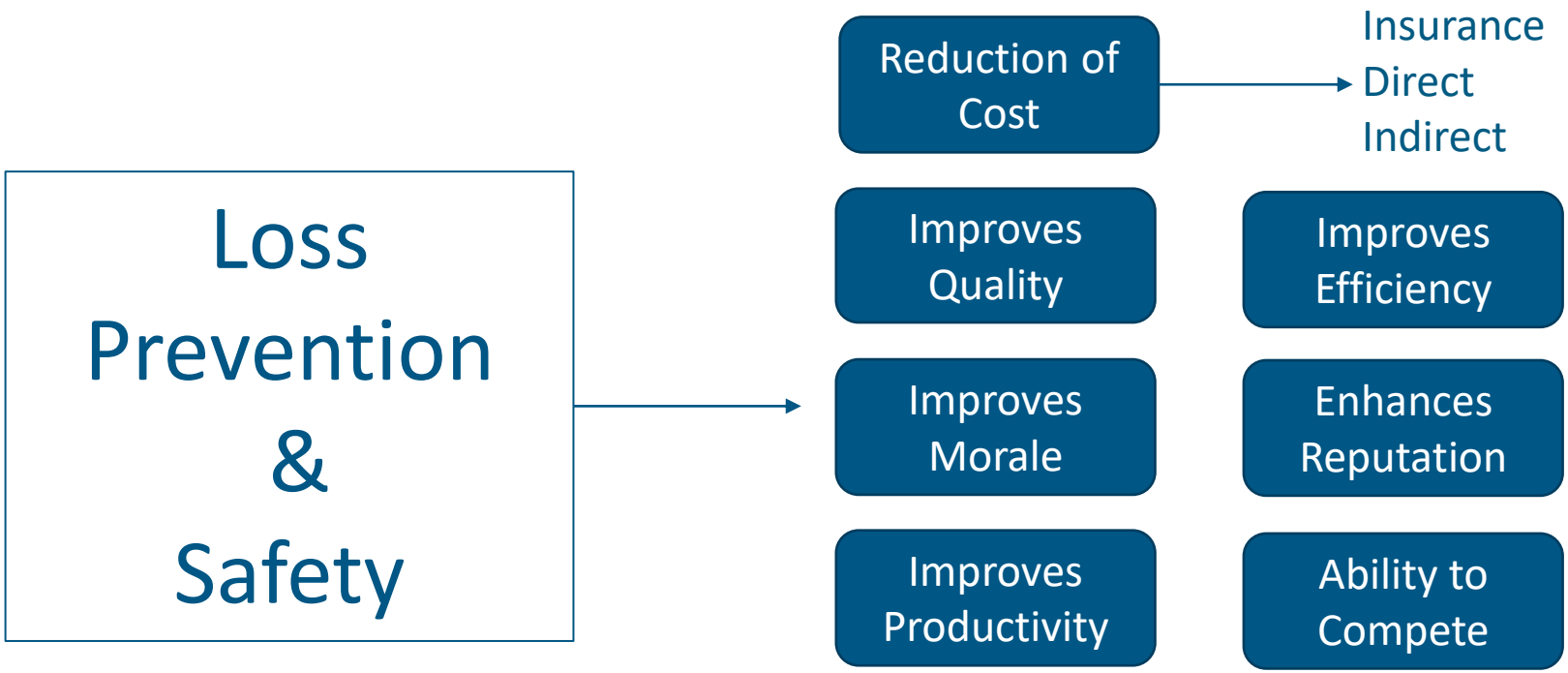
- Some insurance carriers will not entertain employers with a debit (over 1.00 mod) which reduces the ability to obtain insurance at good terms

- Owners/General Contractors may use the EMR as a way of quickly accessing an employer's safety performance.

IMA

DIRECT AND INDIRECT COSTS

LOSS PREVENTION ADDS BUSINESS VALUE



MULTIPLIER EFFECT

Safety's impact on the bottom line is more than just controlling direct costs.

Indirect costs associated with safety and safety accidents are also incurred.

INDIRECT COSTS

These estimates include the following kinds of indirect costs:

- Any wages paid to injured workers for absences not covered by workers' compensation
- The wage costs related to time lost through work stoppage associated with the worker injury
- The overtime costs necessitated by the injury
- Administrative time spent by supervisors, safety personnel, and clerical workers after an injury
- Training costs for a replacement worker
- Lost productivity related to work rescheduling, new employee learning curves, and accommodation of injured employees
- Clean-up, repair, and replacement costs of damaged material, machinery, and property.

Not including OSHA fines, third-party legal costs, pain & suffering, loss of good will from bad publicity.

SOURCE: https://www.osha.gov/safetypays/background

QUANTIFYING INDIRECT COSTS

The magnitude of indirect costs is inversely related to the seriousness of the injury. The less serious the injury the higher the ratio of indirect costs to direct costs.

OSHA's "$afety Pays" uses the sliding scale table below to calculate the indirect costs of the injuries and illness.

Direct Costs	Indirect Cost Ratio
$0 - $2,999	4.5
$3,000 - $4,999	1.6
$5,000 - $9,999	1.2
$10,000 or more	1.1

The indirect cost estimates provided in this program are taken from the Business Roundtable publication, Improving Construction Safety Performance, and are based on a study conducted by the Stanford University Department of Civil Engineering.

SOURCE: https://www.osha.gov/safetypays/estimator

QUANTIFYING TRUE COSTS

Direct Costs	**$178,435**	**$0**	Insurance
Indirect Costs		**$196,278**	

Revenues to Cover Indirect Costs	**$6,542,616**

@ 3% percent profit margin
Assumes the Indirect Costs were not already in the budget

Analyzing direct and indirect costs attempts to demonstrate the benefits of the investment in safety to show the value of avoiding accidents. But what about the costs deployed to administer safety?

SOURCE: https://www.osha.gov/safetypays/estimator

TOTAL COST OF RISK

A DEFINITION THAT IS RIGHT FOR YOU

The International Risk Management Institute (IRMI) defines "**Total Cost of Risk"** ***as the sum of all aspects of an organization's operations that relate to risk, including retained (uninsured) losses and related loss adjustment expenses, risk control costs, transfer costs, and administrative costs.***

The definition includes insight into what constitutes "all aspects of an organization's operation that relate to risk" by including five categories of risk expenses: retained losses + loss adjustment expenses + risk control expenses + transfer costs + administrative costs.

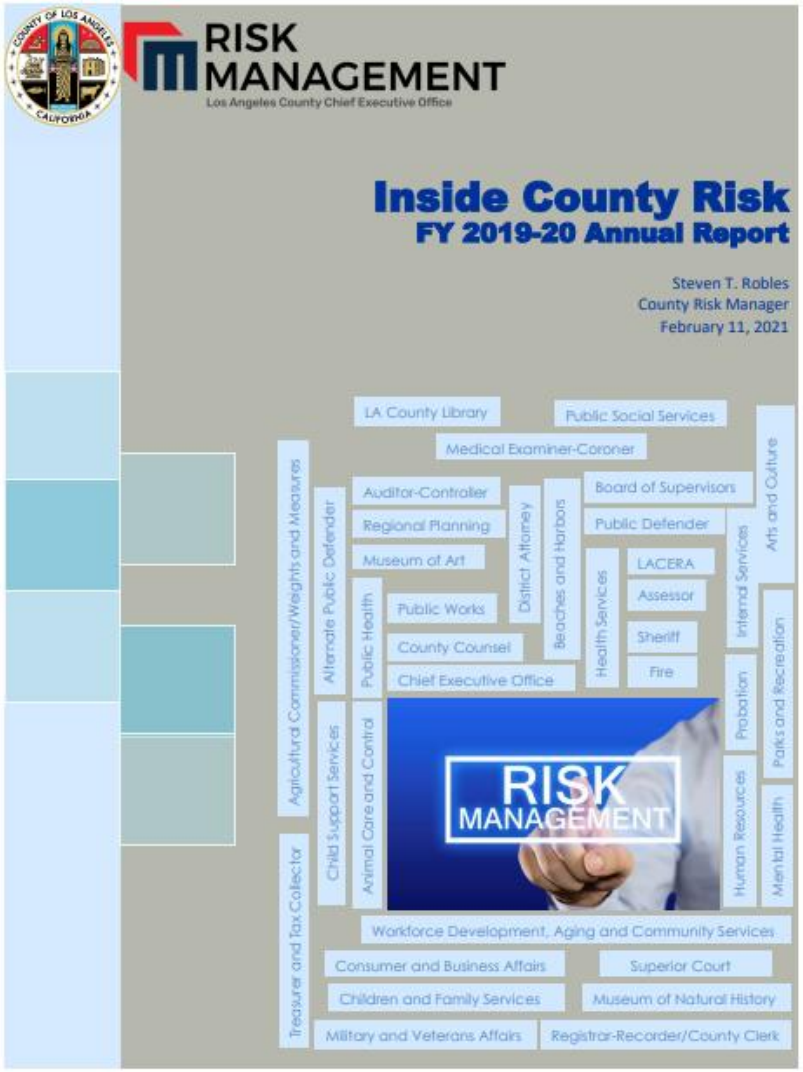
There is no industry standard definition or formula for Total Cost of Risk. Further, the individual line items to be included under the various categories are open ended. At a minimum, the total cost of risk is more than just the cost of insurance premiums. Insurance premiums are simply the transfer costs for risks that are insured under the respective policies.

An enterprise should construct a thoughtful total cost of risk formula that incorporates elements that measure those components that are unique within their organization. **By measuring those cost elements, information can be gleaned on how to effectively lower the overall cost of risk over time.** The downside of creating a customized formula and the lack of a standard industry definition makes the task of benchmarking and comparing total cost of risk to peers difficult.

TCOR FOR ORGANIZATIONS WITHOUT DEDICATED RISK MANAGER

TCOR Category	1/1/2021	% of Revenues	1/1/2022	% of Revenues
Risk Administration				
Insurance Broker Fees / Commissions				
Certificate of Insurance Administrator Costs				
Conference / Education Seminars				
Risk Financing				
Insurance Premiums				
Government Fines				
Claims				
Uninsured Losses				
Outside Legal Fees				
Retained Losses with Deductibles / SIR				
Risk Mitigation				
Loss Prevention Salary & Benefits				
Travel Associated with Loss Prevention				
Technology Associated with Loss Prevention				
Training and Education				
Total Cost of Risk				

SAFETY PROFESSIONALS ANNUAL REPORT



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TAKE AWAYS

KEY TAKE A WAYS

- The ability to assume as much risk of loss that is capable and comfortable, the more savings generated by not exchanging a dollar to the insurance company for 70 cents of loss payment value.
  - Assume predictable and transfer true unexpected

Deductibles are a form of retaining risk. (Retention)

KEY TAKE AWAYS

- Understand that losses develop overtime. The longer a claim is open the propensity for it to settle for more money. There are losses out there that may not be known about when the policy expires.
  - Encourage early reporting and an environment of near misses or potential problems
  - Stay on top of claims through day-to-day and claim reviews
    - Find ways to help the adjuster get information
    - Help find ways to make sure the injured employee gets healthy quick
  - At time of pre-renewal, if you have very little open claims, make a point there should be very little development from open claims

- Loss projections are predicated on the theorem that says, “Past performance is indicative of future behavior . . . If all environmental factors stay the same.”
  - Keep insurance carrier aware of all new or improved safety techniques employed and when implemented

KEY TAKE AWAYS

Just know that all you do in Safety and Loss Prevention has a positive impact on the business . . . no matter how you measure it.

Original presentation included a case study. Please reach out to Caleb or Marcus for additional information on this section of the presentation.

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“

PROTECTING ASSETS IS WHAT WE DO,
MAKING A DIFFERENCE IS WHO WE ARE.

– **ROB COHEN,** Chairman & CEO, The IMA Financial Group

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