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Severity-Based Lagging Indicator: **Making the Best of Our Injury Data**

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Key Take-Aways

- Recent research has uncovered severe philosophical and statistical flaws with the traditional use of lagging indicators of safety performance, such as total recordable incident rate (TRIR) and Days Away, Restricted, or Transferred (DART) rates.
- The severity-based lagging indicator (SBLI) was developed and introduced as an alternative lagging indicator to address the following two specific limitations of TRIR: (1) TRIR counts all incidents the same numerically regardless of injury severity, and (2) 'recordable' incidents are rare and random making them statistically unstable over short time periods.
- SBLI is an injury rate that weights injuries reported on the OSHA 300 log according to their relative level of severity and aggregates them into one number using a weighted sum approach.
- Compared to TRIR, DART, and other traditional lagging indicators, SBLI produces a more statistically stable and representative indication of safety performance.
- To produce statistically precise and meaningful value, SBLI must be computed over extended time frames, which may be achieved by using rolling averages.
- Despite its strengths, SBLI still suffers from many of the same philosophical limitations of traditional lagging indicators such as being retrospective in nature, misaligned with modern definitions of safety, and vulnerable to manipulation through underreporting and case management.

Introduction

The way we measure indicators of business performance influences organizational and personal behavior. Measurement is critical for setting goals, observing progress, comparing groups, and making business decisions. At its essence, measurement is a process of determining the magnitude of something as compared to a reference quantity of the same kind [1]. In safety, we typically use metrics to make comparisons, allowing us to answer important questions such as *How did we perform last year compared to our peers? Did we improve as a company since last quarter?* or *Which contractor has better safety performance?*

For nearly 50 years, the dominant measure of safety performance has been total recordable incident rate (TRIR). TRIR is still often used to make important business decisions ranging from performance evaluations to pre-qualification of contractors. Put simply, TRIR is the count of OSHA-recordable injuries divided by the corresponding number of worker-hours and normalized per 200,000 worker-hours. The primary strength of TRIR is that it is highly standardized and consistently applied across nearly all industry sectors, leveraging the widely accepted definition of a 'recordable' injury propagated by the Occupational Safety and Health Administration (OSHA) [2]. The use of a standard definition of a recordable injury and a single method of computing rates allows for direct comparisons and simple communication. Although alternative measures of safety performance have emerged, such as leading indicators and climate assessments, TRIR persists because it is standardized in a way that alternative metrics are not. Although TRIR is standardized, objective, and easy to communicate, it has severe philosophical and statistical limitations that greatly limit its usefulness. These same limitations generally apply to DART rates as well.

Philosophically, TRIR is flawed because:

1. TRIR is retrospective in nature and stimulates only reactive decision making;
2. The way TRIR is used to communicate the level of safety inherently considers "safety" as the absence of injuries instead of the modern understanding of safety as the presence of safeguards; and

3. All injuries that meet the criteria of OSHA recordable are counted as the same regardless of their relative severity (e.g., a two-stitch cut to the finger is counted the same as a lost limb).

Statistically, TRIR is flawed because:

1. The occurrence of recordable injuries is rare and random, making it statistically unstable even over long timeframes (i.e., 10-100 million worker hours are required to report TRIR to one decimal place of precision); and
2. It is not predictive of itself or of more severe injuries such as fatalities.

Leading and lagging safety indicators often are positioned as diametrically opposed, as if practitioners must choose one or the other. Most argue that lagging indicators should be abandoned in favor of alternative metrics such as leading indicators. However, safety is ultimately about people and the number of injuries that occur matters. We must have lagging indicators, but we must adjust how we use them, to better reflect our values and to have reasonable levels of statistical precision.

In the report, we argue that both leading and lagging indicators are important and that the relationship among these variables provides more insight than measuring any metric in isolation. With this notion, we take aim at improving our lagging indicators by introducing a new variant of lagging indicator called the Severity-Based Lagging Indicator (SBLI).

Definition of SBLI

SBLI is an aggregated injury rate that weights injuries by their relative level of severity and aggregates them into one number. Specifically, SBLI is a lagging indicator that uses a weighted sum method and information typically reported on the OSHA 300 log to create an indexed safety score. SBLI was created to address two primary weaknesses associated with traditional injury rates: (1) in TRIR all events are counted equally regardless of injury severity and (2) recordable incidents are rare and random, causing statistical instability of TRIR over short to medium timeframes.

Method

To create SBLI for the electric power generation and delivery sector, a team of safety professionals representing 27 member companies of the Edison Electric Institute (EEI) were assembled and guided by two technical advisors and a program manager. The goals of the team were to create, pilot, and benchmark SBLI. A community-driven approach was selected so that the members of EEI could consistently measure and report SBLI as a community, reducing the risk of the emergence of incomparable variants (i.e., individual companies ‘doing their own thing’). The consistent use of SBLI ensures that the metric remains comparable and supports community-based trending and learning.

The EEI team made two important decisions in the creation of SBLI. First, the team deliberated to identify which injury severity levels would be included and which would not. Second, the team quantified the relative severity (weightings) of the injury classifications.

Selected Injury Severity Levels

SBLI is predicated on the idea that injury cases should be weighted based on their relative impact. Thus, SBLI requires a clearly defined set of *mutually exclusive* severity levels. To ensure that SBLI is aligned with current incident recordkeeping, we used the categories and definitions from the OSHA 300 log. Table 1 explains the injury severity levels included in SBLI and adopts the same definitions provided by OSHA, including those for first aid and medical treatment [3]. Of note, fatalities are intentionally not included in the SBLI computation for reasons that will be discussed in the next section.

Table 1 – Injury Severity Level Definitions

Injury Severity Level	Symbol	Definition
First Aid	FA	An injury or illness that requires medical attention that usually is administered immediately after the injury occurs and at the location where it occurred. *Note: First aid incidents often consist of a one-time, short-term treatment and require little technology or training to administer.*
Medical Treatment	MT	An injury or illness that does not involve death, one or more days away from work, or one or more days of restricted work or job transfer, and where the employee receives medical treatment beyond first aid.
Job Transfer or Restricted Duty	JTR	As the result of a work-related injury or illness, an employer or health care professional keeps, or recommends keeping, an employee from doing the routine functions of his or her job or from working the full workday that the employee would have been scheduled to work before the injury or illness occurred.
Days Away from Work	DAW	An injury or illness involves one or more days away from work.

Although the definition of first aid incidents is based on OSHA, we do expect that the EEI community will continue to refine and calibrate data collection efforts for first aid injuries because there was high variability in data collection and reporting practices when this report was written.

Selected Weightings

The second key decision made by the team was the relative weighting of the selected severity levels. Essentially, this required the team to answer questions such as, *How many first aid injuries are equivalent to one job transfer case?* Or *How many medical treatment cases are equal to a days away from work case?* The weightings numerically describe the relative impact of one severity level compared to the others.

The reconciliation of weightings requires one consistent unit of injury severity. To ground SBLI in scientific data rather than potentially divergent opinion, we weighted each category based on the magnitude of physical energy typically associated with each severity level (measured in Joules). These estimates were adapted from Hallowell et al. [4], a study that estimated the magnitude of energy associated with injury severity. The weightings derived from this study are presented as Table 1. These weightings are very important philosophically because they allow high-severity injuries to count more than low-severity injuries, addressing a long-standing criticism of traditional injury rates such as TRIR.

Table 1 – Injury Severity Category Weightings

Injury Severity Level	Symbol	Assigned Weight
First Aid	FA	100
Medical Treatment	MT	500
Job Transfer or Restricted Duty	JTR	750
Days Away from Work	DAW	1500
Fatality	F	NOT WEIGHTED

Intentional Exclusion of Fatalities

We made a deliberate decision not to include fatalities in the SBLI aggregation because of inherent incompatibility in the weighting scheme. Including fatalities would have required consensus regarding the number of low-severity injuries that are equivalent to a fatality. For example, How many medical treatment injuries are equivalent to one life? As the team deliberated, we realized that philosophically the weight of a fatality would be nearly infinite compared to the other injury categories. Since fatalities are several orders of magnitude more impactful than any other, including fatalities and their relative weight would make the SBLI metric binary (i.e., the high weight of a fatality case numerically makes less severe cases negligible). Although fatalities were not included in SBLI, we do recommend tracking fatalities as a whole number count and reporting this number alongside SBLI as a complement.

Computing SBLI

SBLI uses a weighted sum approach as shown in Equation 1. In the SBLI equation, the number of injuries for a specific severity level are multiplied by the weighting for that category. Since all the weightings are based on the same unit (energy in Joules), the product of the count of injuries in each severity level and the weighting can be summed to arrive at one aggregated number. The aggregate score is then divided by the number of worker-hours amassed in the same reporting period. Finally, this number is multiplied by 200, which is simply a scalar value that produces a number that is easy to interpret but does not compromise comparability.

To make this accessible, the SBLI equation is stated in words as follows:

> Number of first aid injuries multiplied by the weight of first aid injuries plus the number of medical treatment injuries multiplied by the weight of medical treatment injuries plus the number of job transfer or restriction cases multiplied by the weight of job transfer or restriction cases plus the number of days away from work cases multiplied by the weight of days away from work cases. This sum is then divided by the number of worker-hours in the reporting period and the quotient is multiplied by 200.

$$SBLI = \frac{n_{fa} * w_{fa} + n_{mt} * w_{mt} + n_{jtr*} w_{jtr} + n_{daw} * w_{daw}}{e} * 200 \qquad \textbf{\textit{Equation}}$$

Where,

n_{fa} is the number of first aid cases in the reporting period
w_{fa} is the weighting of a first aid case (100)
n_{mt} is the number of medical case incidents in the reporting period
w_{mt} is the weighting of a medical case (500)
n_{jrt} is the number of job transfer or restricted cases in the reporting period
w_{mt} is the weighting of a job transfer or restricted case (750)
n_{daw} is the number of days away from work cases in the reporting period
w_{daw} is the weighting of days away from work case (1500)
e is the total number of worker-hours amassed in the reporting period
200 is a standard scalar factor

By simply replacing the weight variable with the assigned weightings, we arrive at equation 2. This equation is a simplified version of Equation 1.

$$SBLI = \frac{n_{fa}100 + n_{mt}500 + n_{jtr}750 + n_{daw}1500}{e} * 200 \qquad \textbf{Equation 2}$$

Rolling Averages

Although SBLI includes more injuries than TRIR by virtue of including first aid injuries, the total number of injuries included in a monthly report only is marginally higher. To address this limitation, we use a rolling average so that more information is included in each monthly value. For example, if a 12-month rolling average is used, each month's SBLI value is averaged with the 11 months prior. The effect is a much more stable SBLI trend since short-term aberrations have limited influence. Rolling averages often are used when trending a metric that has very high short-term variability such as stock prices. Applying a rolling average ensures that enough data are used in each monthly SBLI so that the number carries statistical meaning. This method forces us to consider long-term trends. Based on the equations provided by Hallowell et al. (2020), most companies achieve statistical stability with a rolling 12-month average.

Example Company

To provide a full illustration of the SBLI method, a mock dataset was created for 'Company X.' For privacy, we are not analyzing the data from an actual company in the example. Instead, Company X was created by averaging the data from three randomly selected companies. Table 2 provides the necessary data to enable SBLI computation and trending for Company X. These data include monthly counts of injuries for each severity level and the number of worker-hours amassed each month. Data for a four-year period are provided to reveal long-term trends and attain high statical stability. Table 2 also includes the computed SBLI value so that the reader may practice applying Equation 2. Table 3 provides 12-month rolling averages for the same reason. As one can see, Company X has a typical SBLI value between 1.5 and 2.5. To be meaningful, these SBLI values should be compared to a reference dataset. Thus, the next team activity was to create baseline data for SBLI for the EEI community.

Table 2 – SBLI Computation for Company X

Year	Month	Month (#)	Hours	FA	MT	JTR	DAW		SBLI
2018	Jan	1	1221702	5	5	3	4		1.84
2018	Feb	2	1069571	4	5	2	4		1.94
2018	Mar	3	1172202	10	7	5	5		2.69
2018	Apr	4	1294607	6	5	2	2		1.17
2018	May	5	1338205	7	4	2	6		1.97
2018	Jun	6	1180342	5	5	3	3		1.65
2018	Jul	7	1208402	12	8	3	5		2.47
2018	Aug	8	1209507	7	7	4	6		2.68
2018	Sep	9	1104894	6	5	2	6		2.46
2018	Oct	10	1428938	6	7	3	8		2.57
2018	Nov	11	1165845	7	5	4	3		1.84
2018	Dec	12	992878	5	4	1	4		1.86
2019	Jan	13	1079722	6	9	2	5		2.61
2019	Feb	14	1069142	1	3	1	5		1.84
2019	Mar	15	1347523	3	7	2	9		2.79
2019	Apr	16	1146182	4	5	2	3		1.55
2019	May	17	1188637	5	7	6	6		2.94
2019	Jun	18	1130852	7	7	2	5		2.33
2019	Jul	19	1165991	4	6	4	6		2.64
2019	Aug	20	1219845	3	7	4	6		2.59
2019	Sep	21	1291779	2	4	3	6		2.08
2019	Oct	22	1253453	5	5	2	7		2.39
2019	Nov	23	1102620	2	5	5	5		2.53
2019	Dec	24	1085198	2	5	1	4		1.74
2020	Jan	25	1153124	2	7	3	6		2.59
2020	Feb	26	1156614	2	3	4	2		1.33
2020	Mar	27	1404616	4	4	2	4		1.41
2020	Apr	28	1203894	3	4	1	3		1.25
2020	May	29	1201360	2	2	2	3		1.20
2020	Jun	30	1323175	4	7	4	3		1.72
2020	Jul	31	1302271	6	5	8	5		2.55
2020	Aug	32	1256264	7	5	8	7		3.14
2020	Sep	33	1473243	3	4	9	6		2.45
2020	Oct	34	1372404	4	11	7	3		2.28
2020	Nov	35	1204792	3	8	4	3		1.96
2020	Dec	36	1210605	2	10	4	4		2.35
2021	Jan	37	1111613	1	6	3	4		2.04
2021	Feb	38	1390084	3	7	6	3		1.84
2021	Mar	39	1358667	3	7	7	4		2.22
2021	Apr	40	1247410	1	4	5	4		1.90
2021	May	41	1266310	1	6	7	3		2.03
2021	Jun	42	1297234	4	9	7	6		2.95
2021	Jul	43	1226443	4	7	6	2		1.86
2021	Aug	44	1214605	4	3	3	4		1.67
2021	Sep	45	1247748	3	4	6	6		2.53
2021	Oct	46	1229700	2	4	5	5		2.19
2021	Nov	47	1340905	1	6	7	4		2.14
2021	Dec	48	1123707	2	5	5	4		2.22

Table 3 – Company X Rolling SBLI Data

Month (#)	SBLI	12-month SBLI
1	1.84	-
2	1.94	-
3	2.69	-
4	1.17	-
5	1.97	-
6	1.65	-
7	2.47	-
8	2.68	-
9	2.46	-
10	2.57	-
11	1.84	-
12	1.86	2.10
13	2.61	2.16
14	1.84	2.15
15	2.79	2.16
16	1.55	2.19
17	2.94	2.27
18	2.33	2.33
19	2.64	2.34
20	2.59	2.34
21	2.08	2.30
22	2.39	2.29
23	2.53	2.35
24	1.74	2.34
25	2.59	2.34
26	1.33	2.29
27	1.41	2.18
28	1.25	2.15
29	1.20	2.01
30	1.72	1.96
31	2.55	1.95
32	3.14	2.00
33	2.45	2.03
34	2.28	2.02
35	1.96	1.97
36	2.35	2.02
37	2.04	1.97
38	1.84	2.02
39	2.22	2.08
40	1.90	2.14
41	2.03	2.21
42	2.95	2.31
43	1.86	2.25
44	1.67	2.13
45	2.53	2.14
46	2.19	2.13
47	2.14	2.14
48	2.22	2.13

Visualizations

To visually illustrate SBLI trends, we produced several graphs. First, for reference, the traditional TRIR value is graphed. The TRIR values were created using the definition from OSHA by summing the number of cases for Company X involving medical treatment, job transfer or restricted duty, days away from work, and fatality each month; dividing this number by the number of worker hours in that month; and normalizing by 200,000 worker hours. As one can see from Figure 1, this produces a trend that is highly volatile and that lacks any statical trends or forecasting usefulness. Figure 2 illustrates a 12-month rolling SBLI graph based on the same dataset. As one can see, there is a strong contrast where the 12-month rolling SBLI provides a smoother trend that illuminates long-term trends. Note that the trends for SBLI are available for month 12 to 48 because the first 12 months of data are required to create the first observation for a rolling 12-month average. So that the rolling SBLI data may be directly compared to traditional TRIR, both graphs are provided for months 12 to 48.

Figure 1 – Standard TRIR trend for Company X

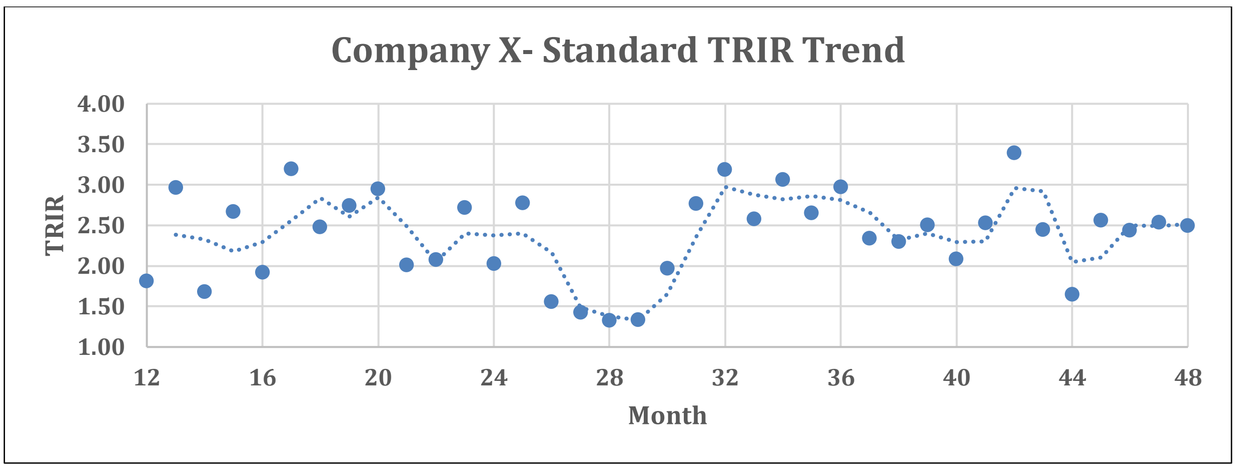
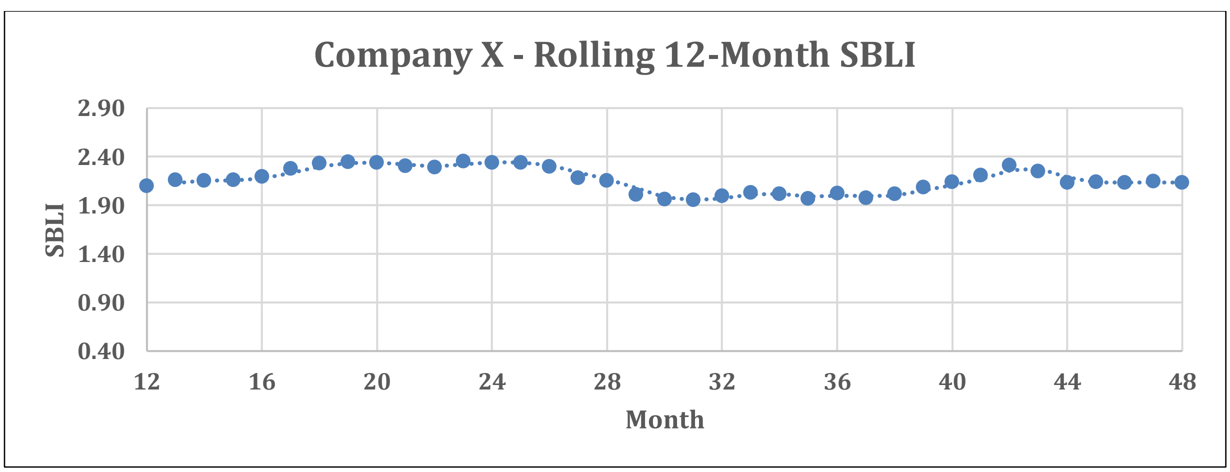


Figure 2 – Rolling 12-month average SBLI for Company X



EEI Baseline

Metrics only are useful if they can be compared against a meaningful reference. For TRIR, we created a strong reference from decades of repeated benchmarking against peers and communities such as EEI. However, since SBLI is new, we do not have an established reference. Thus, the EEI team collected and reported SBLI data for a 48-month period. This involved using a standardized template to report monthly counts of first aid, medical treatment, job restriction or transfer, days away from work cases, and worker-hours. These data then were archived and aggregated to create the baseline.

Data were provided from 20 companies, which included a total of 1,603,906,848 worker-hours, 11,975 first aid injuries, 4,121 medical treatment cases, 2,466 restricted duty or transfer cases, and 7,105 days away from work cases. This dataset provides a very stable reference for future comparison. Appendix A provides the *average* SBLI data over 4 years. A standard TRIR summary and a 12-month rolling average SBLI are provided in Figure 3 and 4, respectively.

Indexing

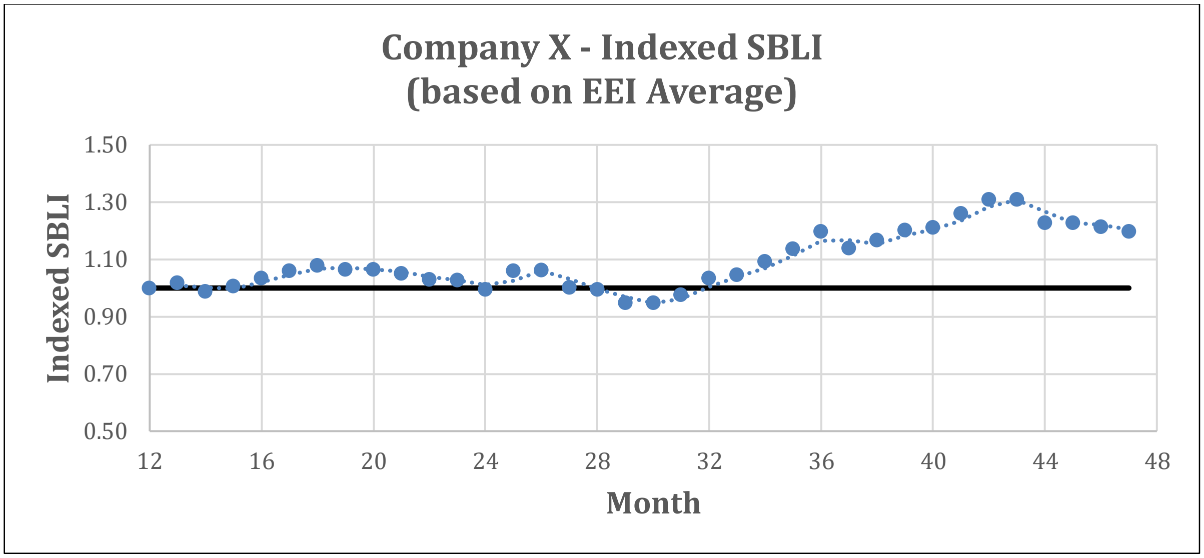
Indexing is a common technique for communicating performance metrics as they relate to a reference dataset. In a typical index, the values are divided by the reference set. Thus, a resultant score of 1 indicates that the observed set is identical to the reference set, above 1 indicates higher than the reference, and below 1 lower than the reference. Indexing also is a common technique used to communicate other forms of business performance to executives (e.g., schedule and budget performance).

To index SBLI, we used the reference data from EEI summarized in Appendix A. Within this dataset, we have two potential references: the EEI average or the EEI median. Comparing against the average is more holistic, but the median may be used if it would be desirable to lessen the influence of outliers or comparatively large companies. When referencing, it is important that the community use the same reference set (either mean or median) to ensure consistency. For EEI member companies, we recommend indexing against the average.

As an example, if we were to index Company X against the moving data from EEI, we could simply divide the SBLI value for Company X each month by the EEI mean or the EEI median for the same month. For example, if Company X’s index value was calculated to be 0.8, this would indicate that Company X had an SBLI 20 percent lower than the average EEI company. Alternatively, if the number was 1.20, this would indicate that Company X had an SBLI 20 percent higher than the average EEI company. The indexed SBLI data for Company X using the EEI average is provided in Figure 3.

Indexing is especially helpful when a community has yet to develop intuition about or reference to a metric. Therefore, it is useful for the first iteration of SBLI.

Figure 3 – Indexed SBLI data for Company X using moving EEI averages



Potential Extensions

In this first major baseline of SBLI, we have learned that weighting injuries by their actual severity, rolling average over 6 to 12 months, and indexing the values by comparing to EEI as a reference dataset produces a much more statistically stable and meaningful trend. This method may be improved significantly in the future by including potential injuries (i.e., near misses) and representing incidents by the precise amount of energy involved (i.e., number of Joules). This would involve using energy as a continuous variable instead of using injury categories. Such a metric essentially would be an estimate of the average energy release per worker-hour, which could be a potentially transformational concept. Making this advancement would require that companies are reporting all near misses and that enough information is available to estimate the magnitude of energy released.

Limitations of SBLI

SBLI is a philosophical and statistical improvement over traditional lagging indicators, but it still is a lagging indicator that is subject to many of the same limitations. For example, it still is retrospective and likely to encourage reactive behavior and using it to describe relative performance inherently assumes that 'safety' simply is the absence of injuries. Also, as with nearly all comparative safety metrics, SBLI is vulnerable to manipulation and underreporting. In fact, SBLI may be more vulnerable to reporting issues and case manipulation than TRIR because reporting first aid injuries is not mandated, and treatment can be manipulated to avoid category escalation. Finally, SBLI is more complex to describe than TRIR, perhaps making it unusable for some audiences.

In summary, SBLI generally is more valid and meaningful than traditional lagging indicators, but it suffers from many of the same severe limitations. Thus, it can be concluded that SBLI is useful when a lagging indicator is required, but it should not be the only variable used to summarize safety performance.

Conclusions

TRIR has been the dominate safety performance metric for nearly 50 years. Despite the strengths of this standardized metric, recent research has demonstrated that the rare and random nature of recordable injuries makes TRIR statistically invalid for most practical applications. Furthermore, TRIR has severe philosophical flaws because all recordable injuries are counted the same regardless of actual severity, it is retrospective and spurs reactive decision making, and it inherently is based on an antiquated definition of safety.

Although SBLI does not address all the flaws of traditional lagging indicators, it was designed to address two primary issues: representativeness and statistical stability. That is, by weighting all injuries by their actual severity, SBLI scores are more heavily impacted by high-severity injuries than by low-severity injuries, thereby making it more representative of actual performance. Furthermore, by including more injury severity levels, aggregating all incidents into one weighted metric, and using 12-month rolling averages, SBLI has much more statistical stability and reveals visual trends that allow companies to uncover their cycles and better control the safety system.

Although some have argued that leading indicators should be used in lieu of lagging indicators, we contend that lagging indicators have an important place in safety performance assessment. After all, the primary goal of any organization is to prevent actual harm. Thus, rather than discontinue use of lagging indicators, we have introduced SBLI as a method to improve upon existing lagging indicators. Thus, we conclude that we should not be arguing whether we should be reporting leading or lagging variables, but rather considering how we can use leading and lagging variables together to reveal greater insights. SBLI provides an important advancement toward the vision of a set of meaningful safety performance metrics.

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Appendix A – Average EEI Data

Year	Month	Hours	FA	MT	JTR	DAW	SBLI	12-month SBLI
2018	Jan	1440072	13	4	2	6	1.83	--
2018	Feb	1398025	12	3	2	4	1.57	--
2018	Mar	1650432	13	5	3	7	2.03	--
2018	Apr	1523429	12	4	2	6	1.78	--
2018	May	1580291	17	6	2	8	2.38	--
2018	Jun	1457137	16	4	3	8	2.39	--
2018	Jul	1376252	17	5	3	7	2.40	--
2018	Aug	1541195	17	6	3	9	2.52	--
2018	Sep	1430885	15	4	2	8	2.32	--
2018	Oct	1636698	14	5	3	8	2.19	--
2018	Nov	1462055	11	4	2	7	2.07	--
2018	Dec	1251350	9	3	2	5	1.82	2.11
2019	Jan	1467866	13	4	2	7	2.12	2.13
2019	Feb	1435583	10	4	3	7	2.13	2.18
2019	Mar	1619873	10	4	2	6	1.80	2.16
2019	Apr	1507955	12	4	1	5	1.56	2.14
2019	May	1585936	13	6	3	10	2.62	2.16
2019	Jun	1429813	15	4	2	9	2.53	2.17
2019	Jul	1454832	15	5	2	11	3.02	2.22
2019	Aug	1568029	14	5	3	9	2.47	2.22
2019	Sep	1484185	13	4	2	8	2.31	2.22
2019	Oct	1625734	12	6	3	10	2.64	2.26
2019	Nov	1496872	9	4	3	11	2.89	2.33
2019	Dec	1293497	8	4	1	10	2.79	2.41
2020	Jan	1475583	9	3	2	4	1.29	2.34
2020	Feb	1471544	10	3	2	5	1.46	2.28
2020	Mar	1587870	10	3	2	6	1.71	2.27
2020	Apr	1543766	8	2	1	6	1.41	2.26
2020	May	1512214	9	3	2	8	2.10	2.22
2020	Jun	1487861	11	4	2	6	1.83	2.16
2020	Jul	1496429	13	4	3	7	2.09	2.08
2020	Aug	1546150	13	4	3	6	1.82	2.03
2020	Sep	1495848	11	4	3	8	2.30	2.03
2020	Oct	1622099	10	5	3	5	1.55	1.94
2020	Nov	1401691	8	3	3	4	1.41	1.82
2020	Dec	1388573	7	3	1	6	1.73	1.73
2021	Jan	1393193	8	3	3	4	1.56	1.75
2021	Feb	1476108	10	3	2	4	1.47	1.75
2021	Mar	1637168	10	3	3	7	1.79	1.76
2021	Apr	1606733	9	3	2	8	1.90	1.80
2021	May	1513302	9	3	3	6	1.74	1.77
2021	Jun	1501293	12	4	2	7	1.94	1.78
2021	Jul	1521889	13	4	2	5	1.54	1.73
2021	Aug	1502508	14	3	2	8	2.19	1.76
2021	Sep	1526730	11	4	3	9	2.39	1.77
2021	Oct	1568992	9	3	3	6	1.69	1.78
2021	Nov	1463019	8	3	3	6	1.79	1.81
2021	Dec	1338188	7	3	2	5	1.67	1.81

Figure 3 – EEI Standard TRIR

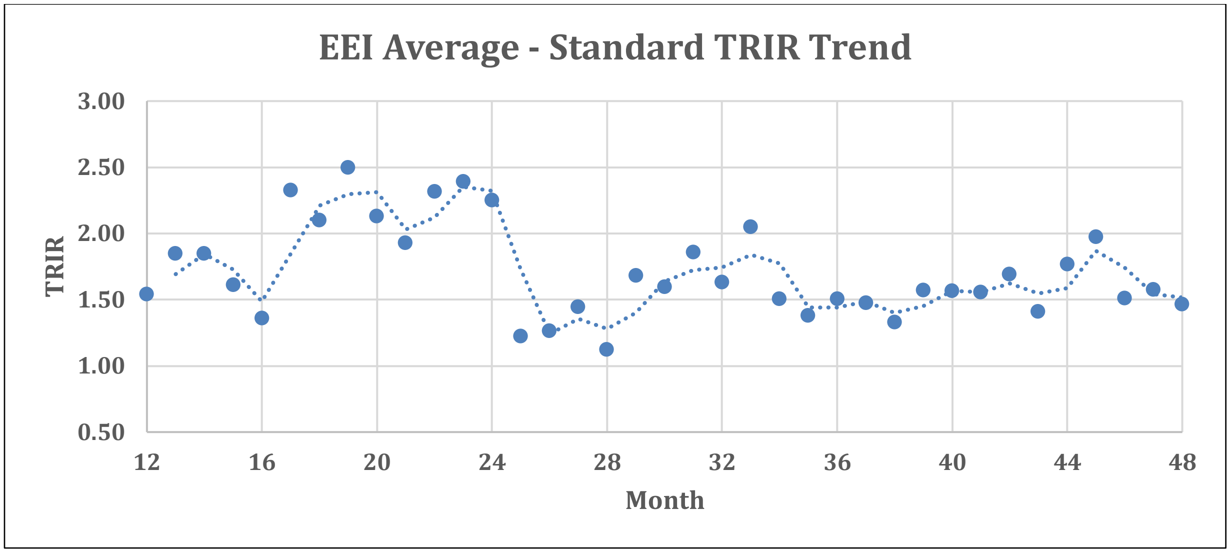
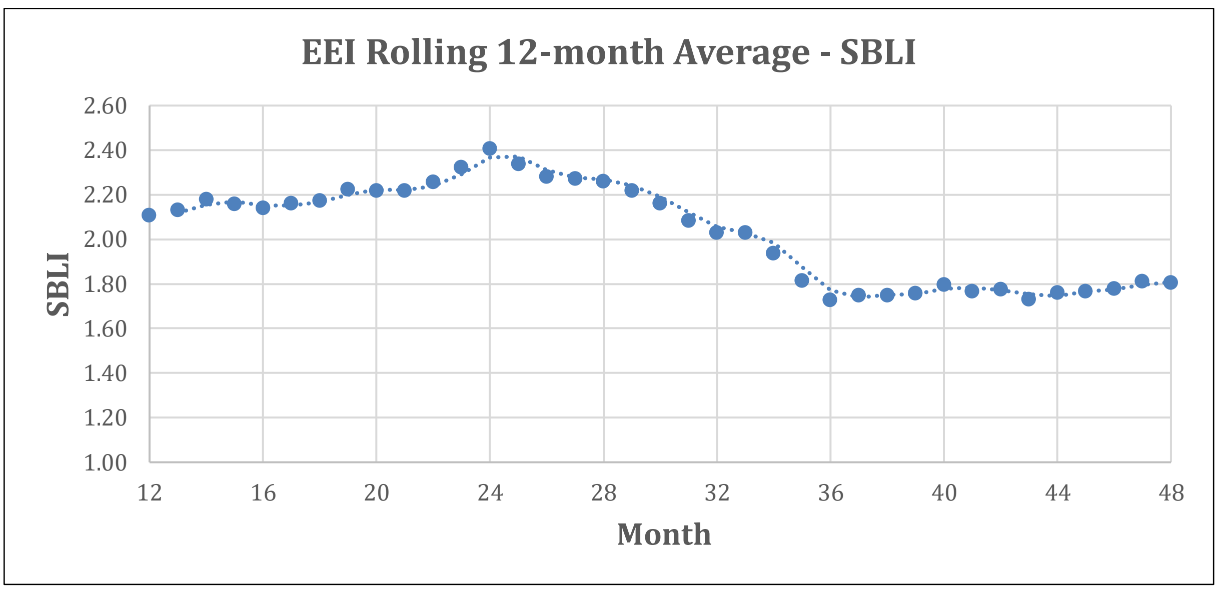


Figure 4 – EEI 12-month Rolling SBLI



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