IMPROVING PRODUCTIVITY BY REDUCING WORKER DOWNTIME THROUGH SMARTER PROTECTION

A WHITEPAPER BY

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SAFETY IS BUT ONE OF SEVERAL FACTORS HAVING AN IMPACT ON PRODUCTIVITY. NONETHELESS IT UNIQUELY STANDS OUT BECAUSE IT PROTECTS ONE OF THE MAIN COMPONENTS OF SAID PRODUCTIVITY: THE WORKERS.

In this whitepaper we will explore this distinct and exceedingly relevant connection between worker safety and productivity in two parts.

The first part presents the candid and often revealing metrics obtainable through OSHA Incident Rate calculators.

The second explores challenges and potential solutions for safety managers in reducing those rates within the framework of a productivity-centric bowtie setup.

PART 1
OSHA INCIDENT RATES AND WHY THEY MATTER

The estimated cost of injuries and illnesses in the workplace exceeds $3 trillion annually. In the European Union, accidents and injuries in the workplace alone cost more than $567 billion each year.

The collection and analysis of data is key to a successful workplace safety strategy. In this, the OSHA Incident Rates prove to be a highly important and agreeably straightforward metric tool.

Using a one-stop safety rate calculator that includes lost time cases, lost workdays, DART-cases, total recordable incidents, and total hours worked is an effective way to evaluate safety and take into account several different factors that may influence incidence rates.

Together, these rates provide a **comprehensive picture of how safe a company is**. They are often used to estimate safety performance, then to develop programs and policies for future prevention.

These rates allow organizations to:

- Use them as a **benchmark to evaluate** its safety programs.
- See how they **measure up against other companies** within their sector.
- **Set or alter priorities** for improving health and safety performance.

OSHA INCIDENT RATES

THE BASICS

An OSHA Incident Rate is a measure of how often a recordable injury or illness **occurs over a specified** period, typically one year.

Overall: t**he lower the rate, the better the safety performance**. A high incident rate exposes an inadequate safety environment, with a negative impact across the organization.

In private industry, the average Incident Rate is 2,9 cases per 100 full-time employees. This rate varies since some industries are more prone to recordable illnesses and injuries than others. Therefore companies are to be **compared only with others within the same industry**.

THE RATES

1 RECORDABLE INCIDENT RATES

The Total Case Incident Rate/Total Recordable Incident Rate formula considers the total number of incidents and the total hours worked by all employees within one year.

FORMULA

$$\frac{\textit{Total № of recordable incidents} \times 200.000}{\textit{Total № of hours worked by all employees}}$$

WHAT YOU NEED TO KNOW

- Recordable incidents are any work-related incidents that result in death, loss of consciousness, days away from work, restricted work, medical treatment beyond first aid or transfer to another job.
- The 200.000 number is a benchmark established by OSHA to compare your own hours to, since it represents what 100 employees would work in 50 weeks based on the average 40-hour work week. Vacation and leave hours cannot be included.

WHY IT MATTERS

- Tracking this data helps improve safety initiative
- Potential problems can be detected before OSHA or other governing body must intervene.
- The data results lends credibility in the event of an inspection

2 DART RATE

The OSHA DART rate is a safety metric, commonly used to audit high-risk industries.

FORMULA

$$\frac{\text{Total № of recordable incidents resulting in DART} \times 200.000}{\text{Total № of hours worked by all employees}}$$

WHAT YOU NEED TO KNOW

- DART incidents are occupational injuries or illnesses that specifically result in 'Days Away, Restricted, or Transferred'. Employees end up remaining away from work, restricted in their work activities or transferring to a different job within a year.
- Ideally a company's DART Rate is lower than its TCIR/TRIR rate.
- The U.S. Bureau of Labor Statistics reports an average DART of 1.5 for every 100 full-time workers in the private industry.

WHY IT MATTERS

- The DART rate proves itself a useful tool for EHS managers since it helps them to evaluate the type of impact injuries or illnesses make on a business over time.
- The DART rate differs from TCIR/TRIR rate in that it only includes those specific recordable injuries or illnesses.

3 LOST TIME INCIDENT RATE (LTIR)

Lost Time Injury Incidence Rates (LTIIR) and Lost Time Incident Frequency Rates (LTIFR) are commonly used to gain insights in the impact of Lost Time Incidents on your company.

FORMULA FOR LTIIR

$$\frac{\text{Total № of lost time incidents} \times 200.000}{\text{Total № of employees}}$$

FORMULA FOR LTIFR

$$\frac{\text{Total № of lost time incidents} \times 200.000}{\text{Total № of hours worked by all employees}}$$

WHAT YOU NEED TO KNOW

- Recordable incidents are any work-related incidents that result in death, loss of consciousness, days away from work, restricted work, medical treatment beyond first aid or transfer to another job.
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4 Lost Workday Incident Rate (LWDI)

Once an injury or illness on the job is classified as a Lost Time Incident, then the number of 'lost workdays' assigned to the case is the number of days that the employee could not come to work because of the incident.

FORMULA

$$\frac{\textit{Total № of days lost due to injury or illness } \mathbf{x} \textit{ 200.000}}{\textit{Total № of hours worked by all employees}}$$

WHAT YOU NEED TO KNOW

- A Lost Workday Incident considers the number of days of missed work, not days that involved restricted tasks.
- The Day the illness or injury occurred is not counted as a lost workday.
- The total number possible due to a single incident is capped at 180.

WHY IT MATTERS

- Although OSHA no longer uses the term 'lost workday' for recordkeeping, employers and safety managers find it beneficial to keep track of their LWDI, if solely to monitor relevant increases and decrease.

PART 2 LOWERING RECORDABLE INCIDENT RATES - CHALLENGES AND SOLUTIONS.

Within the context of the data obtained through OSHA Rate calculations, a **productivity centered** slice within the bowtie analysis can be construed.

An potentially insightful and rewarding exercise for lowering rates, with the aim of safeguarding and improving both safety and productivity. Outlined in the conventional bowtie diagram by:

- Creating **barriers** on the threat side, to avoid those threats becoming an incident.
- Creating **strategies** to mitigate, control and more efficiently respond to incidents once and after they occurred.

AVOID / PREVENT

WORK ORDER FLOW

"When saving a couple of hours can lead to losing a couple of weeks"

Avoiding potentially hazardous of work order combinations, e.g. welding while working on a flammable substance system in the same location. Or:

- **Controlled planning, permit-to-work, pre-execution checks, geofence identification and activation.**

CERTIFICATION AND TRAINING

"When waiting for the right man for the job might save a lot more time and lives in the long run"

Jobs that present a safety risk of any kind or degree can only be done by those workers that are properly certified and/or trained.

- **A rigorously maintained training policy and structure.**

ACCESS RESTRICTION

"When (literally) cutting corners can bring production to a standstill"

Preventing workers from entering potentially hazardous environments, no-pedestrian zones, …, for both continuously and temporarily restricted areas. By extension this applies to vehicle operators.

- **Clear and updated communication (training, rulebook, signage), a structure of checks, automated geofencing, dynamic access control.**

RESPOND

MITIGATING INJURY SEVERITY

"When seconds mean the difference between life and death"

A faster and therefore generally more efficient response to incidents, resulting in a lower injury severity for the (lone) worker and less lost workdays.

- **Having efficient accident response and evacuation protocols in place; ensure workers in distress can send emergency alerts and are found on time; real-time passive alerts through automatic fall/shock/collision detection.**

ANALYZING TO IMPROVE

"When doing something faster forces a drastic slowdown"

Collecting data for fast follow ups, thorough causality research and transparent after-incident investigations.

- **Monitoring and analyzing worker and vehicle movement (spaghetti charts) to identify high-risk hotspots; employing technology that can register near misses.**
- **Monitoring driver behavior: speeding, near misses, restricted access zones.**

FEEDBACK

"When that's not going to happen again"

Deriving action points from post-incident analysis to further improve current prevention and threat avoidance strategies.

- **Creating new safeguards or adapting existing threat barriers to prevent incident repeats**
- **Demonstrating company dedication to actively and continuously pursuing a safer working environment, resulting in a happier and thus more productive workforce.**

HOW TO REDUCE THESE RATES?

As explored in Part 2 of this whitepaper, together, these rates can be used to monitor and ultimately improve worker safety with as one of several objectives:

REDUCING THE INJURY FREQUENCY SAFETY; FORMULA

$$\frac{\text{Total № of lost time injuries} \times 200.000}{\text{Total hours worked}}$$

REDUCING THE INJURY SEVERITY RATE; FORMULA

$$\frac{\text{Total № of days lost due to work injuries} \times 200.000}{\text{Total hours worked}}$$

CONCLUSION

SAFETY AS A CUMBERSOME HINDRANCE TO PRODUCTIVITY IS NO LONGER A RELEVANT VIEWPOINT. JUST AS PRODUCTIVITY SHOULD NOT BE THE ALL DOMINANT OPPOSING FORCE IN PURSUING A SAFER WORK ENVIRONMENT.

SAFETY MANAGERS TODAY HAVE THE DATA AND THE TOOLS TO INTEGRATE BOTH SAFETY AND PRODUCTIVITY IN A SYNERGETIC STRENGTH.

A SAFE WORK ENVIRONMENT MAKES FOR HAPPY WORKERS AND ACCORDING TO AN OXFORD STUDY HAPPY WORKERS ARE OVERALL 13% MORE PRODUCTIVE. COMPANIES WITH THE BEST TRACK RECORD IN EFFICIENCY SHOW AN INJURY FREQUENCY RATE THAT IS 18 TIMES LOWER THAN AVERAGE.

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