SPOTLIGHT ON FACTORY FIRES

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Q3 2022

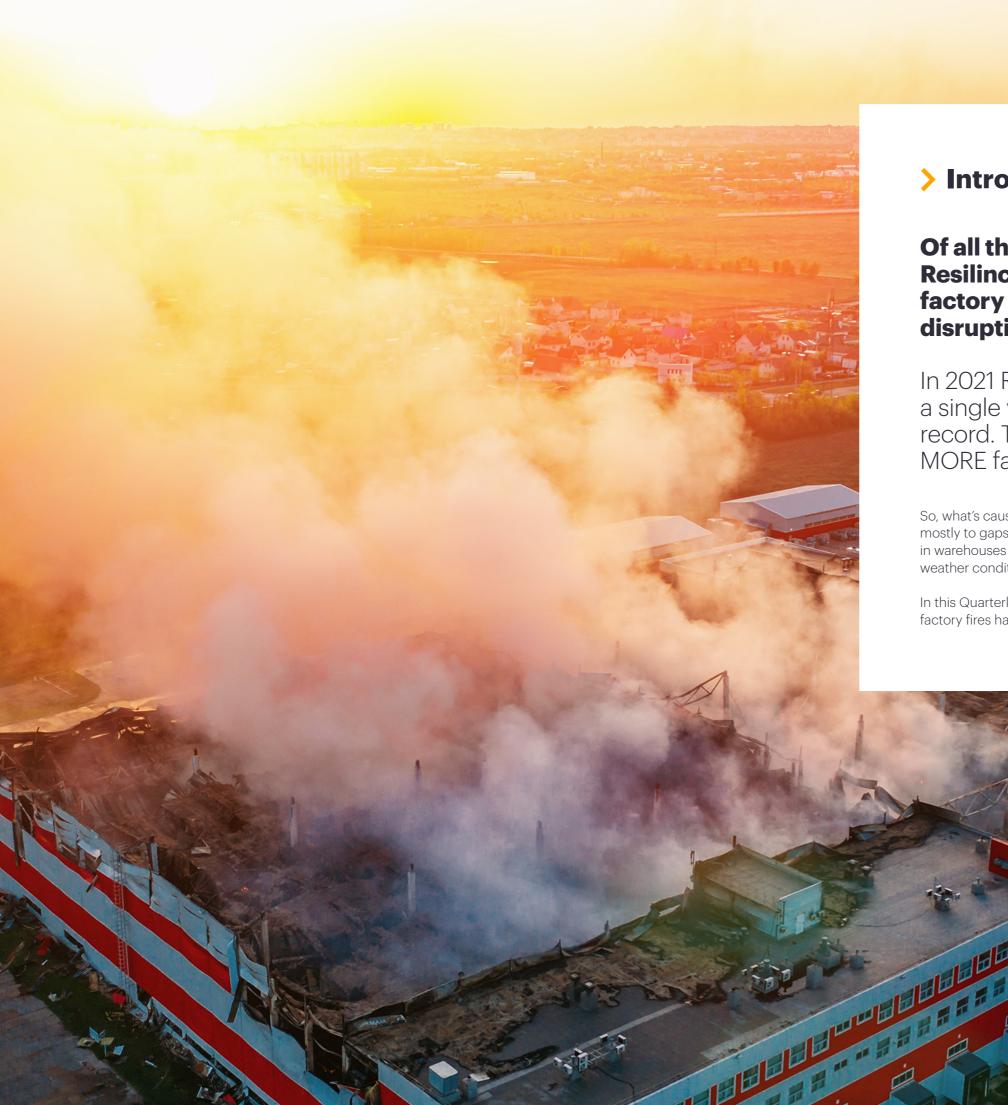
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> Introduction

Of all the disruptive events tracked by Resilinc's EventWatch^{AI} monitoring platform, factory fires are consistently the number one disruption reported, globally.

In 2021 Resilinc recorded the most factory fires in a single year and 2022 is on track to break 2021's record. Through Q3 of 2022 we've sent alerts on MORE factory fires than all of 2021.

So, what's causing this substantial year-over-year increase? The biggest driver is due mostly to gaps in regulatory and process execution as well as a shortage of skilled labor in warehouses (COVID exacerbated the issue). Component shortages and adverse weather conditions such as extreme heat also play a role.

In this Quarterly Report Spotlight we will share exclusive data and discuss the impact factory fires have had on supply chains over the last few years, through Q3 2022. •

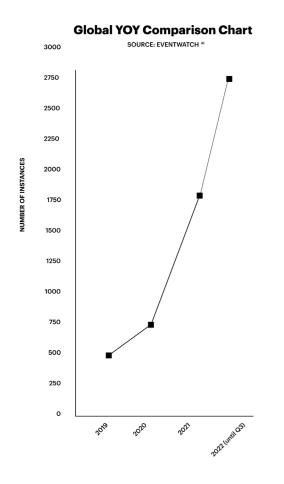


EventWatch^{AI} Data and **Analysis: Factory Fire**

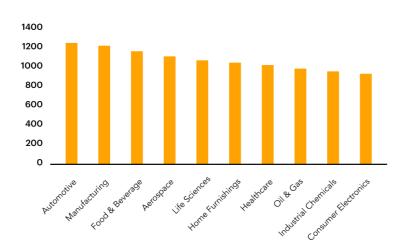
In 2021, Resilinc sent out a total of 1,946 notifications regarding factory fires that took place globally - a 129% increase YoY.

We have seen this number steadily increase year over year. Factory fires have increased over the last couple of years as a result of pandemicrelated labor shortages and regulatory issues.

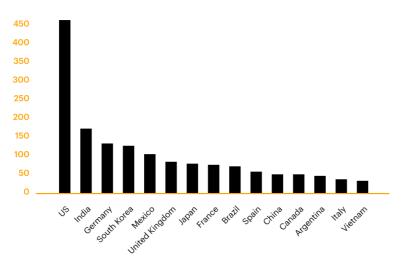
So far in 2022, Resilinc's EventWatch^{AI} has sent out 2,889 alerts on factory fires; this puts the year on track to have the most factory fires reported in history.

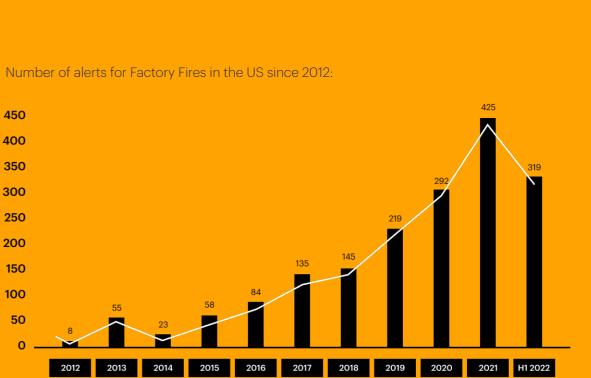


Top 10 industries impacted by Factory Fires, based on number of EventWatch^{AI} alerts:



Top 15 countries affected by Factory Fires in 2021, based on the number of EventWatch^{AI} alerts:





Primary causes of fires include:

Electrical and lighting equipment Human error Faulty equipment and machinery Flammable liquids and gasses Arson/deliberate Furnaces Hot work/welding

Typical locations of where fires start:

Machine

Assembly Area/ Manufacturing Area

Warehouse/Storage

Roof

Inside the facility

Outside

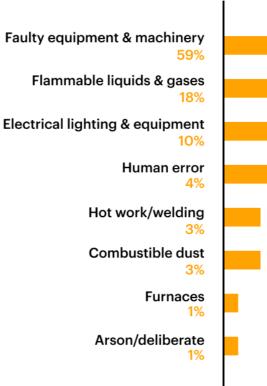
Study of Factory Fire Events 2020-2021 Fires

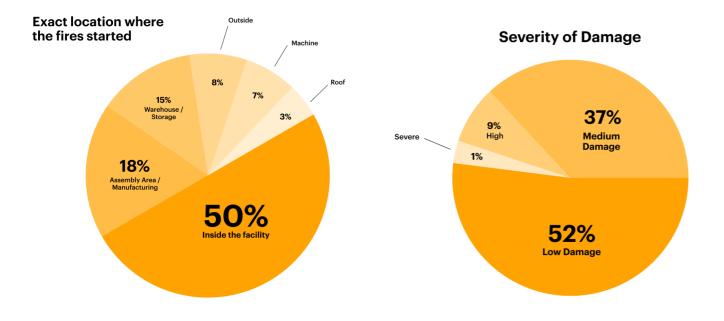
Resilinc analyzed 305 factory fire events, globally, from 2020-2021 to find the most common location(s) and cause(s) of factory fires.

We found that half of all fires started inside the facility, with the most common cause - by far - being faulty equipment and machinery. Flammable liquids and gasses were the second-highest cause of fire.

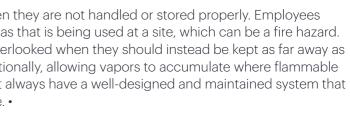
For those fires that started in the assembly or manufacturing area, around 11% activated the fire sprinklers and 9% of fires led to over four weeks of downtime. Often, equipment and machinery are not properly installed, operated, or maintained, which can lead to industrial fires. Companies do not always have proper safety, cleaning, or maintenance procedures for machiner or if they do, employees often aren't sufficiently trained, leaving them unaware of what risks to watch out for and what to do if they find a hazard while working with machinery. Additionally, companies typically do not proactively replace older equipment or machinery; instead, they wait until the equipment stops functioning properly, which can be a fire hazard.







Flammable liquids and gasses often spark industrial fires when they are not handled or stored properly. Employees often do not know the safety information for every liquid or gas that is being used at a site, which can be a fire hazard. Ignition sources within the working environment are often overlooked when they should instead be kept as far away as possible while working with flammable liquids or gases. Additionally, allowing vapors to accumulate where flammable liquids and gases are used can lead to fires. Companies don't always have a well-designed and maintained system that can effectively remove vapors and reduce the hazard of a fire. •





> Lessons from the Trenches: Impact of Factory Fires

A single factory fire has the ability to impact the global supply chain.

Take this example: In October 2020 a fire broke out at a semiconductor manufacturing plant in Japan; it took three days to put the fire out and when the dust settled, production lines were estimated to be down a minimum of six months. As a result, procurement teams - from the hi-tech to automotive sectors - were scrambling. The price of some chips went from \$5 to \$110 in a matter of days and ultimately cost sourcing organizations tens of millions of dollars. A risk assessment survey later revealed that the site did not have an automatic sprinkler system or fire suppression system.

Now, imagine if that risk had been flagged and escalated by one or more of the organizations who were sourcing chips from this site? Alternate suppliers could have been secured or pressure to install sprinklers could have been applied; the cost of installing an automatic sprinkler system could have been paid by one of the sourcing organizations. It's clear in this case, the cost to install sprinklers would have dwarfed the cost associated with the fire. Because of this fire, automotive companies that did not prioritize ordering more semiconductors as vehicle sales rebounded lost out to electronics manufacturers who had visibility into their supply chain and longstanding relationships with their semiconductor manufacturers.

We saw this happen again in March 2021 at the Renesas Electronics semiconductor fab in northeast Japan. A fire at the plant resulted in a four month waiting period until it could resume pre-shipment levels, worsening the already tight global automotive chip supply. •

> The Renesas fire was caused by faulty equipment - a plating tank was ignited due to overcurrent. The fire damaged 2% of the factory's manufacturing equipment including the pure water system and the air conditioning. A total of 6,640 sq. feet was burned. Roughly two-thirds of impacted production was for automotive chips.

COVID-19's Impact on Factory Fires

Over the last two years, disruptions due to Human Health (another risk category Resilinc tracks) and COVID-19 lockdowns have been a leading cause of factory fires. A shortage of skilled labor in warehouses, social distancing policies, and gaps in regulatory and process execution all played a role.

Even after restrictions were lifted, many workers were still reluctant to return to work and continued to stay home; this impacted the warehouse's ability to return to full manufacturing capacity.

Another major cause of factory fires is a failure to maintain production standards in accordance with NFPA and OSHA; this resulted in gaps in regulatory and process execution. In particular, this was an issue after COVID-19 restrictions were lifted in 2022: factories began mass manufacturing products rather than maintaining factory standards including checking smoke detectors and fire sprinklers, or removing flammable materials. •



"That is what we looked at: Why are there so many factories? Because people are not doing the preventive maintenance. Factories need to be kept clean, free of debris near the hot work areas," she said. "There needs to be constant inspection of the electrical systems and machinery and things like that. This is one of those things that's the outcome of COVID."

BINDIYA VAKIL FOUNDER AND CEO OF RESILINC

Understanding the Cost of Risk and ROI of Visibility

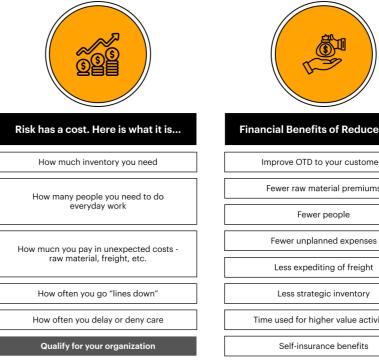


> Resilinc Solutions to Offset **Factory Fire Risk: Mapping, Risk Assessments, Monitoring**

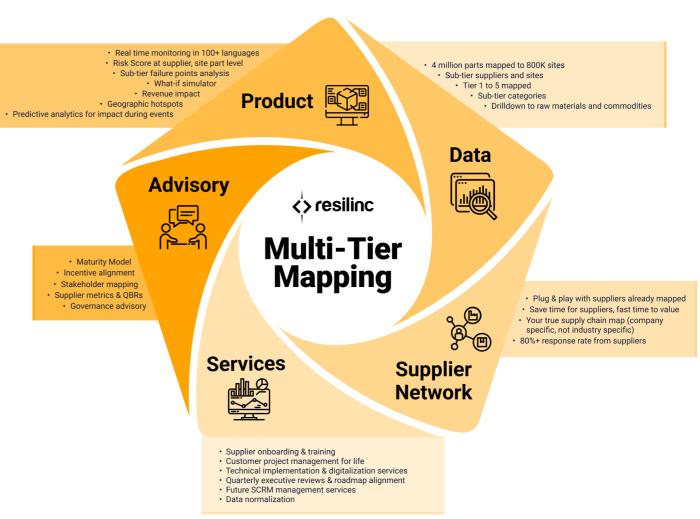
Looking at past fires that have impacted global supply chains, we have learned that incorporating a risk program could have prevented millions of dollars in loss and backlogs. If risk had been flagged for the semiconductor plant fire in 2020, the plant could have installed sprinklers and alternate suppliers could have been secured for companies who supplied from Asahi Kasei Microdevices. Organizations who use a consistent program to assess all suppliers in their supply chain across all risk types have better visibility and can prioritize supplier risks.

MONITOR DISRUPTIONS ACROSS:





Our Multi-Tier Mapping Solution is Comprehensive and Powered by 12 Years of Supplier-Validated Data



Best Practices to Mitigate Factory Fire Risk:

Multi-Tier Mapping

Multi-tier supply chain mapping (ideally down to the part-site level), provides a complete picture of your entire supplier network.

Assess Suppliers for Risk

Survey and score suppliers specific to their business continuity practices and fire safety practices and policies. Work with the at-risk suppliers to develop joint plans to close gaps and ensure limited exposure to any trouble. If the risk is too great, it may make sense to terminate the relationship and find a new supplier.

Monitor

Knowing what is happening across your supplier network allows for an understanding of potential issues and the ability to quickly mitigate risk.

Collaborate with suppliers

According to a recent Gartner survey, 77% of organizations are currently investing in deeper supplier relationships. This includes looking for ways to proactively collaborate with suppliers to reduce risks. For example, we've seen some companies fund sprinkler systems.



Reduced Risk	
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value activities	

Long Term Benefits of Resilience

Improve customer satisfaction

Build long term trust with suppliers

Get predictible supplier performance

Grow the business despite disruptions

Build investor & analyst confidence

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